ACUTE RESPIRATORY INFECTIONS IN CHILDREN

MANAGEMENT OF THE YOUNG CHILD WITH AN ACUTE RESPIRATORY INFECTION

SUPERVISORY SKILLS

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MINISTRY OF HEALTH & FAMILY WELFARE
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SUPERVISORY SKILLS

MANAGEMENT OF THE YOUNG CHILD WITH AN ACUTE RESPIRATORY INFECTION ESPECIALLY PNEUMONIA

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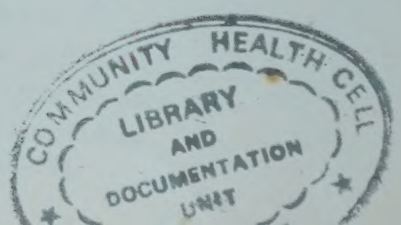

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MANAGEMENT OF THE YOUNG CHILD WITH AN ACUTE RESPIRATORY INFECTION

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INTRODUCTION

Most children have about three to five acute respiratory infections (ARI) each year. Children with respiratory infections make up a large portion of patients seen by health workers in health centres. These infections tend to be more frequent in urban communities than in rural areas.

Respiratory infections include infections in any area of the respiratory tract including the nose, ears, throat (pharynx), voice box (larynx), windpipe (trachea), air passages (bronchi or bronchioles), or lungs. Look at page 2 to see a diagram of the respiratory tract.

Many areas of the respiratory tract can be involved at the same time. Therefore there can be a wide variety of signs and symptoms of infection. These include:

- Cough,
- Difficult breathing,
- Sore throat,
- Runny nose, or
- Ear problem.

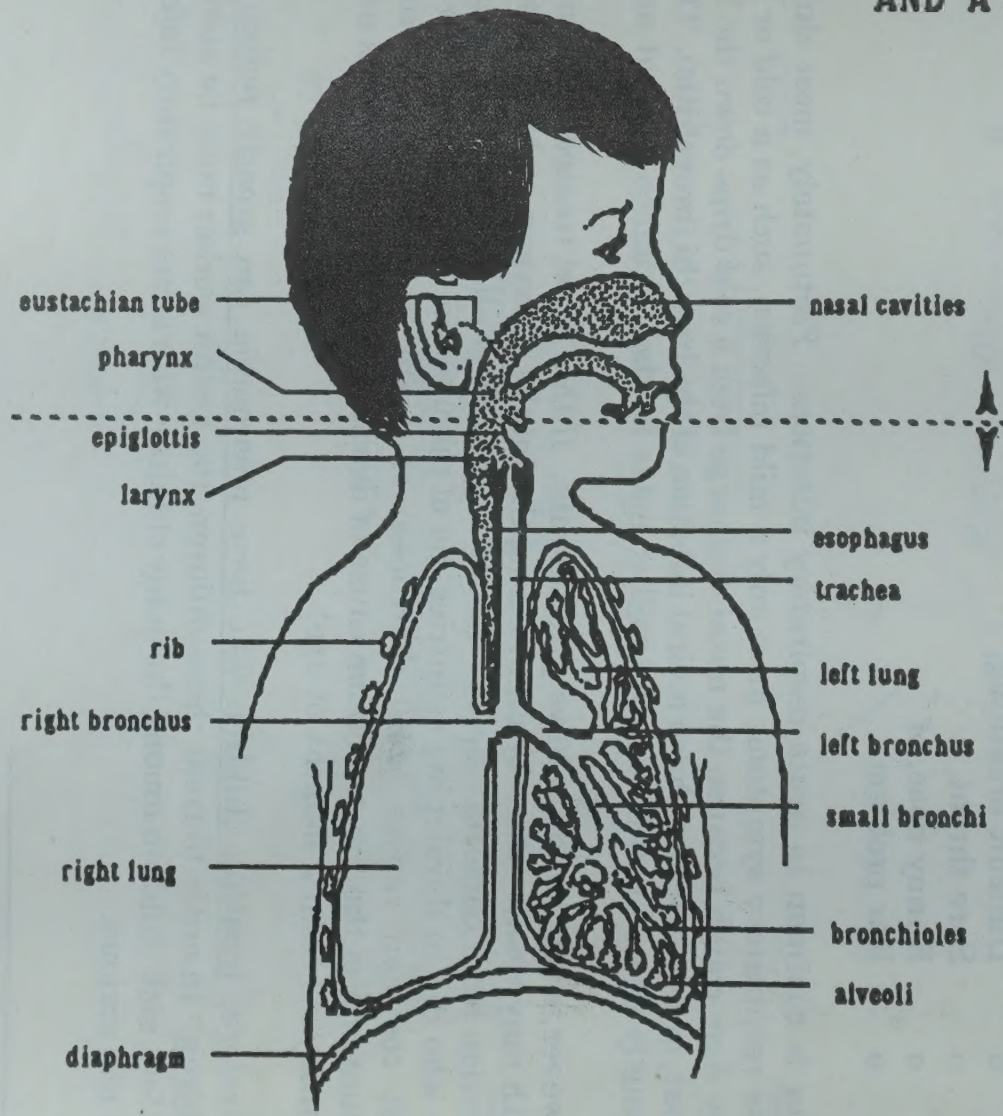
Fever is common in acute respiratory infections. Fortunately, most children with these respiratory symptoms have only a mild infection, such as a cold or bronchitis. They may cough because the nasal discharge from a cold drips down the back of the throat, or because they have a viral infection of the bronchi (bronchitis). They are not seriously ill and can be treated well at home by their families without antibiotics.

However, a few children have **pneumonia**. If this is not treated with an antibiotic, death may result either by diminishing the intake of oxygen, or by an overwhelming infection from bacteria (sepsis). About one-fourth of all children less than 5 years of age who die in developing countries die of pneumonia. It is, in fact, one of the two most common causes (with diarrhoea) of death in children. In some areas, pneumonia is the most common cause of death. Many of these deaths are in young infants less than 2 months of age[1].

Therefore, treating children who have pneumonia can greatly reduce deaths in children. In order to treat these children, the health worker must be able to identify the few, sick children among the many children with acute respiratory infections that are not serious.

[1] Throughout this module, the phrase "young infant" is used to refer to an infant less than two months of age.

ANATOMY OF THE RESPIRATORY TRACT AND A LIST OF ACUTE RESPIRATORY INFECTIONS



UPPER RESPIRATORY TRACT

LOWER RESPIRATORY TRACT

ACUTE UPPER RESPIRATORY INFECTIONS

- Cold
- Ear problem (Otitis media)
- Sore Throat (Pharyngitis)

ACUTE LOWER RESPIRATORY INFECTIONS (ALRI)

Infections of:

- Epiglottis
- Larynx
- Trachea

} Croup (Conditions causing stridor)

- Bronchitis
- Bronchiolitis
- Pneumonia

USING THIS MODULE

This module is designed to help you teach health workers how to manage children with cough or difficult breathing. In this way you can help them detect cases of pneumonia and treat (or refer) them correctly. This module also presents the management of common upper respiratory infections such as colds.

Thus, at the completion of this module, you will be able to manage children under five years of age with:

- Cough or difficult breathing (including pneumonia);
- The common cold.

You will learn how to give antibiotics, treat fever and advise a mother on how to give home care. You also will be able to determine whether the child needs to be referred to a hospital for additional care.

METHOD OF APPROACH

If you have completed the Supervisory Skills modules of the WHO Diarrhoeal Diseases Control Programme, the approach used in this module will be familiar to you. The course materials include:

o	Case management charts:	These outline the skills and information you need to manage children with cough or difficult breathing.
o	Text:	This provides more detailed explanations of how to identify and treat acute respiratory infections.
o	Exercises:	These help you learn how to complete the assessment and treatment steps.

Complete the module by reading it and working through the practice exercises. There is a section at the end of the module called "Definitions of Terms". Refer to that section whenever you read an unfamiliar term. There may be several types of exercises in a module. These are described below:

* **Short-answer exercise**:
  In a short-answer exercise, you will be asked to write an answer to the exercise. The correct answer will be given so you can check your own work.

* **Individual work followed by discussion with a facilitator:**
In this type of exercise, you will first be asked to write an answer to the exercise. You will then talk with a facilitator, who will review your answers with you and help resolve any questions you may have. The facilitator will also give you a copy of the answer sheet for the exercise.

Before each exercise of this type,
you will see a picture like this:

* **Individual work followed by group discussion:**
In this type of exercise you will be asked to write an answer to the exercise. When all participants are ready, the facilitator will lead a small group discussion to review the answers. The group discussion will allow you to discuss how the information in the course materials can be used in your health area.

* **Role play followed by group discussion:**
In this type of exercise, you will be asked to play the role of a person in a situation that may arise in your job. For example, you may be asked to play the role of a health worker talking to the mother of a child with a cough or cold. After the role play, the facilitator will lead a small group discussion.

Before each exercise which includes
a group discussion or role play,
you will see a picture like this:

CASE MANAGEMENT CHART

This chart is provided to help health workers manage a child with acute respiratory infection:

- *Management of the Child with Cough or Difficult Breathing*

This chart is designed to help health workers treat children correctly and efficiently. They do not replace training and experience in using the techniques they summarize. However, after health workers have received training in the techniques of managing respiratory infections, the chart will help them recall and apply what they have learned. That is why it is important that you understand how to use the chart by the end of this course.

You will work with both a full-sized chart and with smaller, individual sections of the chart which are included in the module. A copy of the chart is also included at the end of this module. A facilitator should have hung the full-sized chart where everyone can see it. Look at the chart now so you know where they are.

USING THE CHART

There are three parts to good case management of the child with a respiratory infection:

- **Assess the child**
- **Classify the illness**
- **Treat**

Look at the full-sized case management chart again and find these three steps on each chart. These steps, and the sections of the management charts that describe them, are introduced individually in this module.

* The chapters on assessment describe **how to collect the information** you need about signs of respiratory problems.
* The chapters on classifying the illness tell you **how to use the signs to classify the illness and identify the appropriate treatment.**
* The chapters on treatment give detailed instructions on how to: give an antibiotic, advise the mother on how to give home care and treat fever.

SELECT THE APPROPRIATE CASE MANAGEMENT CHART

The case management chart summarizes the management steps for different illnesses. Therefore, one of the first steps in managing a child with an acute respiratory infection is to determine which part the chart should be used. Do this by:

- **Welcoming the mother and asking her to sit with the child.**
- **Asking her why she has come.**
- **If the mother's response does not include cough or difficult breathing, ask her if the child is coughing or has difficult breathing.**

  * It is important to ask the mother this question because mothers will frequently simply say their child has a cold or a runny nose, and not specify that the child also has a cough or difficult breathing.

  * "Difficult breathing" refers to any unusual pattern of breathing in a child. Mothers may describe it in different ways. For example, they might use the terms "noisy," "fast," or "interrupted."

  A young infant may have pneumonia or another severe disease without coughing, so health workers should be particularly careful when listening to mothers describe symptoms of a young infant to learn if there is a history of difficult breathing.

- **If the mother's response still does not include cough or difficult breathing, look to see if the child is coughing or has difficult breathing.**
- **Then, select the appropriate case management chart:**

  * If the mother's complaint or your observation includes **cough** or **difficult breathing**, the health worker should use the chart, *Management of the Child with Cough or Difficult Breathing*.

  * If the child has only a **runny nose** or **cold** (without cough, difficult breathing, ear problem or sore throat), the child needs home care only. The health worker should advise the mother how to give home care. Fever, if present, should be treated.

Select the appropriate case management chart.

The diagram on this page summarizes how to select the appropriate case management chart for assessing, classifying and treating child below 5 years of age with cough or difficult breathing.

Cough or Difficult Breathing?

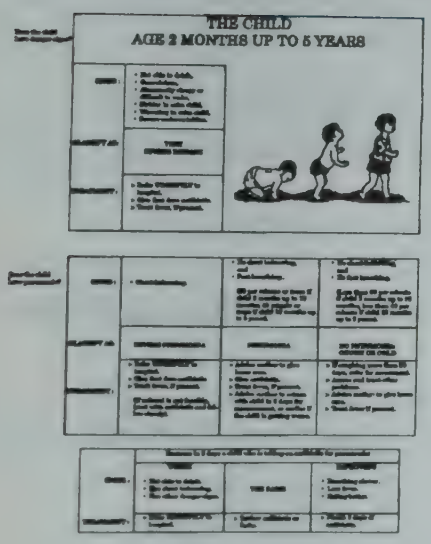
If yes, ask age

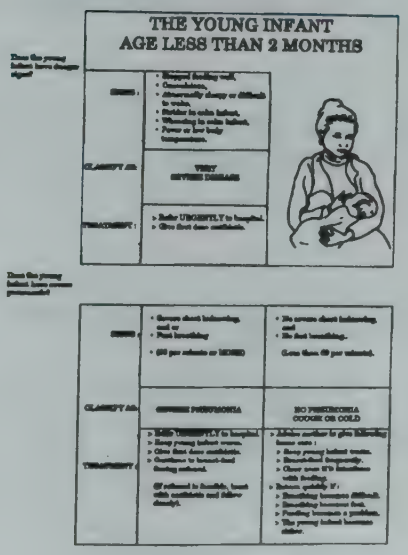
child 2 months up to 5 years

young infant less than 2 months age

If no

Advise mother on home care and treat fever, if present





DO NOT ENTER THE CHART IF CHILD DOES NOT HAVE COUGH OR DIFFICULT BREATHING

EXERCISE A

In this exercise, you will practice selecting the appropriate case management chart. Pretend you are a health worker in a health centre seeing patients with acute respiratory infections. Given the information below, decide which case management chart you will use to manage the case: the chart, *Management of the Child with Cough or Difficult Breathing.*

1. **If a mother told you that her child has a cough:**

   * Do you have enough information to select a chart? YES NO
   * If **yes**, which part of the chart would you use? If **no**, what would you do next?

2. **If a mother told you that her child had a cold:**

   * Do you have enough information to select a chart? YES NO
   * If **yes**, which chart would you use? If **no**, what would you do next?

     Home care

3. **If a mother told you that her infant before 2 months has difficult breathing ?**

   * Do you have enough information to select a chart? YES NO
   * If **yes**, which chart would you use? If **no**, what would you do next?

4. **If a mother told you that her child had a runny nose and a fever:**

   * Do you have enough information to select a chart? YES NO
   * If **yes**, which chart would you use? If **no**, what would you do next?

     Home care
     ± Rx of fever

Tell the facilitator when you have finished this exercise.

MANAGEMENT OF THE CHILD WITH COUGH OR DIFFICULT BREATHING

Chapter 1
Assess

"Assess" means obtaining information about the child's illness by asking the mother questions, looking at, and listening to the child. In this chapter you will be told what information to obtain about the child, and how to obtain it. The meaning of the signs will be described in later chapters.

A child with cough or difficult breathing could have pneumonia, which is a serious disease that can result in death. However, a cough or difficult breathing can also be caused by a common cold, a blocked nose, a dusty environment, whooping cough (pertussis), tuberculosis, measles, croup or wheezing disorders. By carefully assessing a child, you will take the first important step towards preventing unnecessary deaths from pneumonia and other severe diseases.

The steps for assessing a child are described in detail on the following pages. You will ask the mother questions about the child's health. You will also look at and listen to the child for signs of difficult breathing and general signs of the child's condition.[2]

You have already asked the mother why she came to the health centre when you selected the management chart, so you know that you will be using the assessment questions listed on the chart, "Management of the Child with Cough or Difficult Breathing". Find the title "Assess" on the chart now, and locate the subheadings "Ask" and "Look, Listen".

The chart will also be presented in the module in small sections so that you can learn how to use it. Below is the section of the chart that lists the points you should cover during the assessment.

Identify the box on the chart which describes the assessment of the child 2 months upto 5 years of age

Assess : Child age 2 months upto 5 years

ASK:	LOOK, LISTEN:
. Is the child coughing? For how long? . Has the child had fever? For how long? . Has the child had convulsions? . Age 2 months up to 5 years : Is the child able to drink?	(Child must be calm) . Count the breaths in one minute. . Look for chest indrawing. . Look and listen for stridor. . Look and listen for wheeze. . See if the child is abnormally sleepy or difficult to wake. . Feel for fever (or measure temperature). . Look for severe undernutrition.

[2] If you see a child who is obviously very sick, and in need of care that you cannot provide, you should refer the child to a hospital immediately without assessment.

Identify the box on the chart that describes assessment of the young infant.

Assess : Young infant less than 2 months old

ASK:	LOOK, LISTEN:
. Is the infant coughing? For how long? . Has the young infant stopped feeding well? . Has the young infant had fever or does he feel cold? . Has the young infant had convulsions?	(Young infant must be calm) . Count the breaths in one minute. . Look for chest indrawing. . Look and listen for stridor. . Look and listen for wheeze. . See if the young infant is abnormally sleepy or difficult to wake. . Feel for fever or low body temperature (or measure temperature).

It is important to keep the child as calm as possible because a child who is crying and upset may exhibit signs that can be confused with signs of illness. Before beginning the assessment, ask the mother:

- Not to wake up the child, if the child is asleep.
- Not to undress or disturb the child.

Then start the assessment. As you cover each point, write down the information you learn about the child on a piece of paper so it is easy to remember.

ASK the mother (or caretaker):

- **How old is the child?**
- **Is the child coughing? For how long?**
- **Age 2 months up to 5 years: Is the child able to drink?**

The child is not able to drink if he is not able to drink **at all**. This includes the child who is too weak to drink when offered fluids, is not able to suck or swallow, or who repeatedly vomits and keeps nothing down.

Breast-feeding children may have difficulty sucking when their noses are blocked. However, if they are not severely ill, they still can breast-feed if their nose is cleared.

- **Age less than 2 months: Has the young infant stopped feeding well?**

The young infant has stopped feeding well if the breast-feeding or bottle-feeding **less than half** of what the young infant usually takes. Mothers can estimate changes in the amount of breast-feeding from the length of time the child sucks.

- **Has the child had fever? For how long?**

  In the young infant also ask if the body feels cold to touch. For how long?

- **Has the child had convulsions?**

  Ask the mother if the child has had convulsions during the current illness.

LOOK, LISTEN

The next part of this section describes how to look at and listen to a child to find out whether the child has difficult breathing such as chest indrawing, fast breathing, stridor or wheeze.

It is especially important to look and listen to the child's breathing only when the child is quiet and calm. It is not possible to accurately count the breathing rate, or assess other signs of difficult breathing in a child who is frightened, crying or angry. To calm the child, give the child something to play with, ask the mother to breast-feed the child, or suggest they wait in another room until the child calms down.

- **Count the breaths in one minute**

  Look for breathing movement anywhere on the child's chest or stomach. If you are not able to see this movement easily, ask the mother to lift the child's shirt. If the child starts to cry or becomes upset, have the mother calm the child again before counting.

  As children get older, their breathing rate slows down. Therefore, the cutoff you will use to determine if a child has fast breathing will depend on the age of the child:

If the child is:	Then he has fast breathing if you count:
Less than 2 months	*60 breaths per minute or more*
2 months up to 12 months	*50 breaths per minute or more*
12 months[1] up to 5 years	*40 breaths per minute or more*

[1] A child who is exactly 12 months old would have fast breathing if he breathed 40 or more times per minute.

There are a number of methods you can use to count a child's breaths. Three which are useful are:

1. Use a sounding timer that sounds after one minute (60 seconds). Count the child's breaths for one minute.

2. Use a watch with a second hand, or a digital watch. Ask another health worker to tell you when 60 seconds have passed so that you can watch the child's chest. If you cannot find another health worker to help you, put the watch where you can glance at the second hand while looking at the child's chest to count the breaths.

3. Use a watch with a second hand, or a digital watch. Count to the respiratory rate cutoff, then look back at the watch to see if this took more than one minute.

Repeat the count of a child age 2 months up to 5 years if you are unsure of the count (for example, if the child was actively moving and it was difficult to watch the chest).

However, repeat the count of a young infant EVERY time you count more than 60 breaths per minute. This is important because the breathing rate of a young infant is often erratic. The young infant will occasionally stop breathing for a few seconds, followed by a period of very rapid breathing. This is why it is also important to count the young infant's breathing for a full 60 seconds. Determine if a young infant has fast breathing in this way:

* If you count less than 60 breaths per minute, the young infant does not have fast breathing.

* If you count a rate of 60 breaths or more, wait and recount the rate:

  - If the second count is also 60 or more breaths per minute, the young infant has fast breathing.

  - However, if the second count is less than 60 breaths per minute, the young infant does not have fast breathing.

If you have not already lifted the child's shirt when looking for fast breathing, ask the mother to lift it now, before you look and listen for chest indrawing, stridor and wheeze. Before looking for these signs, make sure you know when the child is breathing IN and when the child is breathing OUT.

- **Look for chest indrawing.**

  Look for chest indrawing when the child breathes IN. The child has chest indrawing if the lower chest wall goes in when the child breathes in. Chest indrawing occurs when the effort required to breathe in is much greater than normal.

  In normal breathing, when the child breathes IN, the whole chest wall (upper and lower) and the abdomen move OUT. With chest indrawing, when the child breathes IN, the lower chest wall moves IN, while the upper chest wall and abdomen move OUT.

  The best place to look for chest indrawing is the upper part of abdomen and lower part of chest. If a clear groove appears every time the child breathes in, he has chest indrawing.

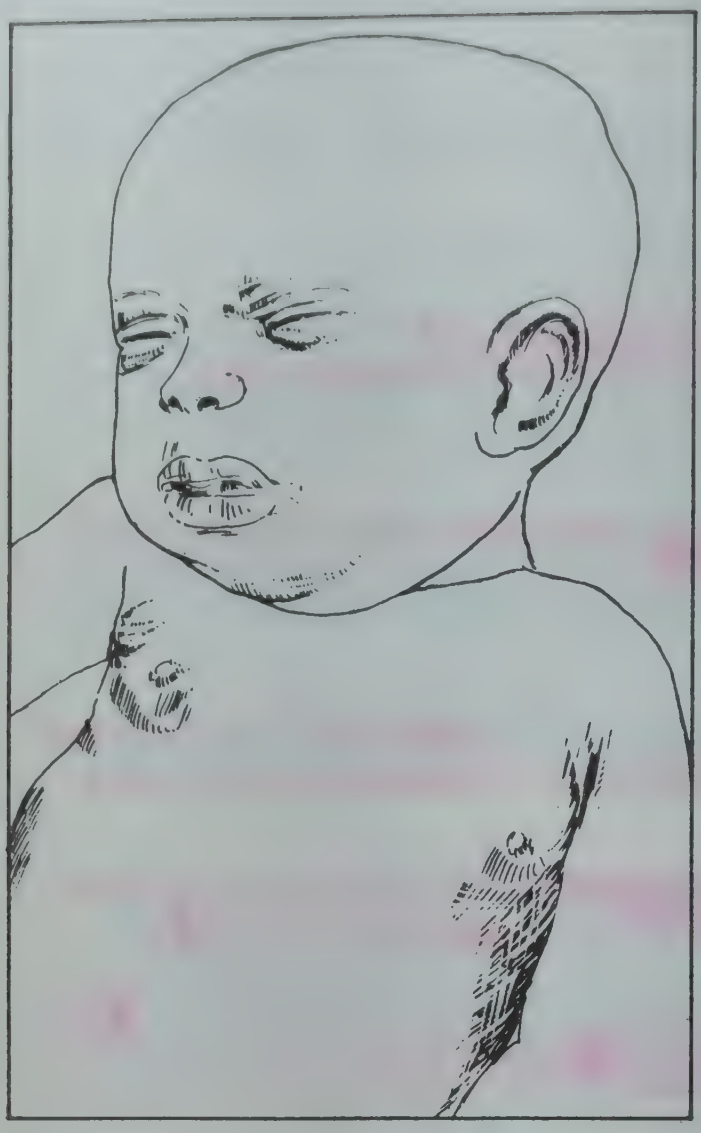
  If only the soft tissue between the ribs or above the clavicle goes in when the child breathes in (intercostal retractions), this is not chest indrawing.[3]

  Be especially careful when looking for chest indrawing in young infants. Mild chest indrawing is normal in young infants because their chest wall bones are soft. However, severe chest indrawing (very deep and easy to see) is a sign of pneumonia.

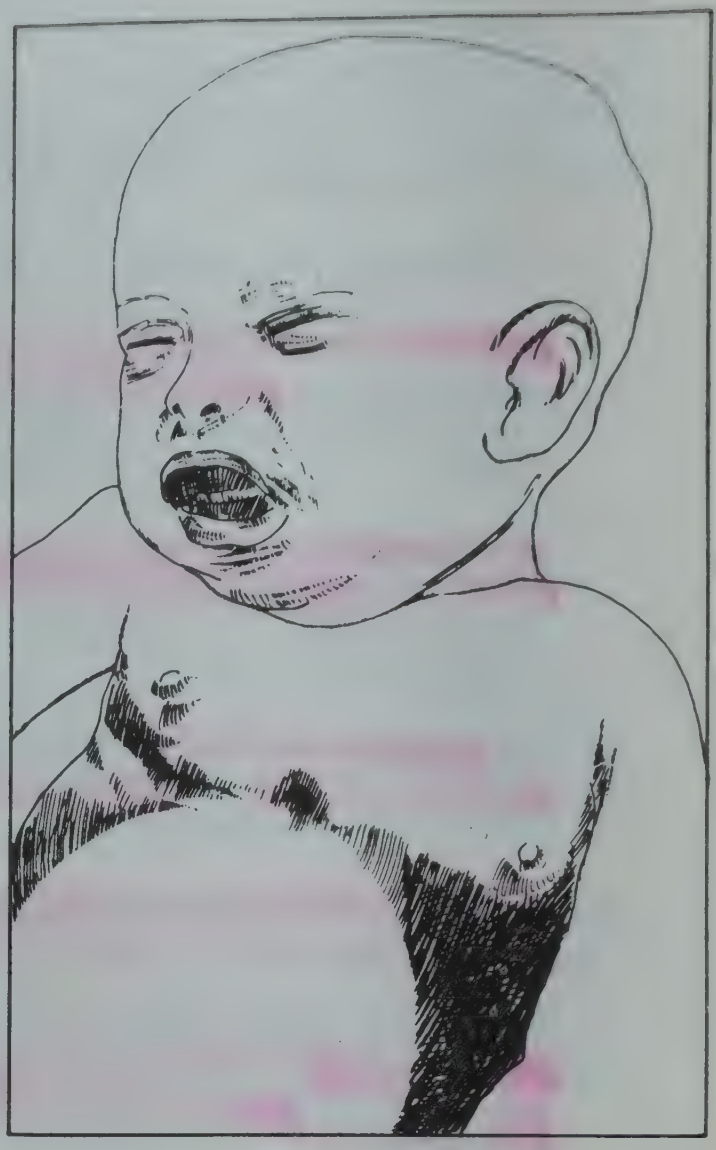
  If there is any question about whether the child has chest indrawing, reposition the child and look again. If the child's body is bent at the waist, it is hard to judge the movement of the lower chest wall. Reposition the child so he is lying flat in the mother's lap. If the chest indrawing is still not clearly visible, assume that the child does not have chest indrawing.

  Chest indrawing is only significant if it is present all the time and definitely visible. If you see it only when the child is upset or trying to feed, but not when resting peacefully, do not regard this as chest indrawing.

[3] Chest indrawing as defined here is the same as "subcostal indrawing" or "retractions".



The child breathing in
WITHOUT chest indrawing.



The child breathing in
WITH chest indrawing.

* Child 2 months upto 5 years age has severe pneumonia if he has chest indrawing.

* Infant less than 2 months age has severe pneumonia if he has severe chest indrawing.

- **Look and listen for stridor.**

Look for stridor when the child breathes IN. Listen for stridor by holding your ear near the child's mouth, since the noise may be difficult to hear. Stridor is a harsh noise made when the child breathes IN. It occurs when there is a narrowing of the larynx, trachea, or epiglottis which interferes with air entering the lungs. These conditions are often called croup.

Sometimes you will hear a wet noise if the nose is blocked. This is present when the sound is heard during inspiration and expiration. Clear the nose, and listen again. Often, a child who is not very ill will have stridor only when the child is crying or upset, so be sure to look and listen for stridor when the child is calm.

- **Look and listen for wheeze.**

Look for wheeze when the child breathes OUT. Listen for the wheeze noise by holding your ear near the child's mouth, since the noise may be difficult to hear. A child with wheezing makes a soft musical noise or breathing OUT is difficult. The breathing out takes longer than normal and requires effort. Wheezing is caused by a narrowing of the air passages in the lungs.

Sometimes so little air moves that there is no noise. Look to see if the breathing out phase requires great effort, and is longer than normal.

If the child is wheezing, ask the mother if her child has had a previous episode of wheezing within the last year. A child with "recurrent wheeze" has had more than one episode of wheeze in a 12-month period.

You should also look at and listen to the child for other signs of the child's general condition. To do this, you must touch the child to find out if certain signs are present. The child does not have to be calm to get the following information:

- **See if the child is abnormally sleepy or difficult to wake.**

An abnormally sleepy child is drowsy most of the time when the child should be awake and alert. This sick child often will not look at the mother or watch your face when you talk. The child may stare blankly and may not appear to see.

Ask the mother if the child has seemed unusually sleepy or difficult to wake. Look to see if the child wakens when the mother talks, or when you clap your hands. A child who is difficult to wake may continue to sleep even with the mother's voice or a loud clap. Even a very young baby, who sleeps a lot, should waken naturally with these disturbances, or when the mother begins to undress the child.

- **Feel for fever or low body temperature (or measure temperature).**

  Measure the child's temperature, if possible. A temperature of 38°C[4] or more is a fever. Less than 35.5°C[5] is an abnormally low body temperature, called hypothermia.

  If you do not have a thermometer, feel the child's body to see if it is hot or too cold. Sometimes the hands and feet may feel cold in a child who is not adequately wrapped. However, cold calves and armpits indicate the child is hypothermic (too cold). Cold body is a sign of illness in young infant below 2 months age.

- **Check for severe undernutrition.**

  Check for severe undernutrition by looking at the child.[6] Look for either:

  - Severe marasmus, which is an extreme wasting away of fat and muscle so that the child looks like skin and bones, or
  - Kwashiorkor, which is identified by a generalized swelling of the body and thin, sparse hair.

You have now gone through all the tasks for assessing the children with a cough or difficult breathing, including the questions to ask the mother, and what to look and listen for.

---

4 The Fahrenheit equivalent for 38°C is 100.4°F.

5 The Fahrenheit equivalent for 35.5°C is 96°F.

6 Other methods can be used to determine if a child is severely malnourished, such as measuring weight and height, or the circumference of the arm. Follow the policy of your national programme.

EXERCISE B

In this exercise you will watch a videotape which shows you examples of children with some of the signs described in this chapter. You will also have an opportunity to practice:

* counting a child's breathing, and
* identifying chest indrawing.

Ask the facilitator how you should time 60 seconds when counting breaths. If a sounding timer is not available, you may need to work in pairs so that one person can watch the clock while the other person counts.

The exercise will begin as soon as the facilitator has started the videotape. Use the space below to write any questions that come to mind during the videotape, and to record your answers to questions about counting breaths and identifying chest indrawing that will be asked during the videotape.

Record your answer to questions about breathing rates here :	**Record your answer to questions about chest indrawing here :**
Child One : 1st count ---------- 2nd count ----------	1. 2.
Child Two : 1st count ----------	3. 4.
Child Three : 1st count ---------- 2nd count ----------	5.

Chapter 2
Classify the Illness of the Child
Age Two Months up to Five Years

In the previous chapter you learned how to assess the child. In this chapter, you will learn how to interpret the signs for a child age 2 months up to 5 years.[7] You will make a decision about how to classify the child's illness, and then identify the appropriate treatment for that illness.

"Classify the illness" means making decisions about the type and severity of disease. This is done by answering questions about the signs you saw during the assessment. You will then put each child into one of four classifications:

Very severe disease
Severe pneumonia
Pneumonia (not severe)
No pneumonia

Each disease classification has a corresponding treatment plan which you should follow after you have classified the child's illness. There are three general treatment plans to follow.

Look at the case management chart and find the title, "Classify the Illness". Then note that the boxes in this section are either red, yellow or green. Each colour refers to one of the three general treatment plans.

Red means, "Refer urgently to hospital."
Yellow means, "Give antibiotic plus home care."
Green means, "Give home care."

The colour of the boxes will help you quickly determine the severity of the illness and the management plan.

---

[7] Young infants die more often of pneumonia, and are therefore managed somewhat differently from an older child. This chapter describes how to classify the illness of a child age 2 months up to 5 years of age (i.e., 2-59 months of age). Chapter 3 describes how to classify the illness of young infants (i.e. less than 2 months of age).

2.1 Identify the boxes on the chart that describe how to classify the child age 2 months up to 5 years.

The first piece of information you will use from the assessment is the age of the child. This is important because you will use a different section of the chart when classifying a child 2 months up to 5 years of age than when classifying a young infant.

Look at the case management chart on the wall and find the section, "Classify the Illness" again. Then find the subheading:

* THE CHILD
AGE 2 MONTHS UP TO 5 YEARS

Use the boxes below this subheading to manage a child who is 2 months up to 5 years of age. These boxes are reproduced below:

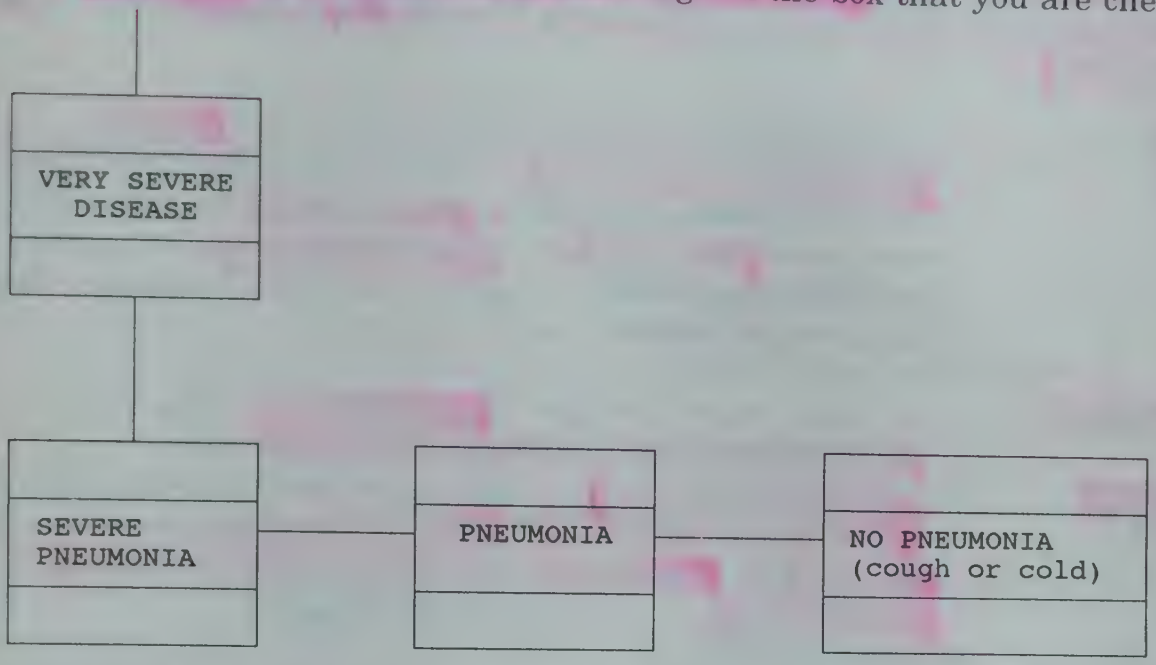
Does the child have danger signs?	THE CHILD AGE 2 MONTHS UP TO 5 YEARS	
SIGNS :	• Not able to drink, • Convulsions, • Abnormally sleepy or difficult to wake, • Stridor in calm child, • Wheezing in calm child, • Severe undernutrition.	
CLASSIFY AS:	VERY SEVERE DISEASE	
TREATMENT :	▸ Refer URGENTLY to hospital. ▸ Give first dose antibiotic. ▸ Treat fever, if present.	

Does the child have pneumonia?			
SIGNS :	• Chest indrawing.	• No chest indrawing, and • Fast breathing.. (50 per minute or more if child 2 months up to 12 months; 40/minute or more if child 12 months up to 5 years).	• No chest indrawing, and • No fast breathing. (Less than 50 per minute if child 2 months up to 12 months; less than 40 per minute if child 12 months up to 5 years).
CLASSIFY AS:	SEVERE PNEUMONIA	PNEUMONIA	NO PNEUMONIA: COUGH OR COLD
TREATMENT :	▸ Refer URGENTLY to hospital. ▸ Give first dose antibiotic ▸ Treat fever, if present. (If referral is not feasible, treat with antibiotic and follow closely).	▸ Advise mother to give home care. ▸ Give antibiotic. ▸ Treat fever, if present. ▸ Advise mother to return with child in 2 days for reassessment, or earlier if the child is getting worse.	▸ If coughing more than 30 days, refer for assessment. ▸ Assess and treat other problems. ▸ Advise mother to give home care. ▸ Treat fever if present.

	Reassess in 2 days a child who is taking an antibiotic for pneumonia:		
	WORSE		IMPROVING
SIGNS :	• Not able to drink. • Has chest indrawing. • Has other danger signs.	THE SAME	• Breathing slower. • Less fever. • Eating better.
TREATMENT :	▸ Refer URGENTLY to hospital.	▸ Review antibiotic or Refer.	▸ Finish 5 days of antibiotic.

IMPORTANT

While classifying the illness follow systematically the order shown in the illustration. You should stop if you find any positive sign in the box that you are checking.



2.2 Decide if the child has a VERY SEVERE DISEASE:

There are four classifications of disease for a child age 2 months up to 5 years: Very Severe Disease, Severe Pneumonia, Pneumonia (not severe), and No Pneumonia: Cough or Cold. To classify a child's illness, you must follow the steps as they are presented in this section of the module. The first step is to decide if the child has a Very Severe Disease.

You can tell if a child has very severe disease by using the information from the assessment to decide if the child has a "danger sign". **Ask this question about EVERY CHILD you see with a cough or difficult breathing:**

Does the child have danger signs?

A child who has:

any danger sign

is classified as having a *Very Severe Disease*.

Danger signs for the child age 2 months up to 5 years of age are: not able to drink, convulsions, abnormally sleepy or difficult to wake, stridor when calm, or severe undernutrition. The possible causes of these signs are many. However, the health worker is not required to diagnose their specific cause. He must only recognize the danger signs and know that the child has a **very severe disease**, and may be at high risk of dying.

NOT ABLE TO DRINK

A child who is not able to drink could have severe pneumomia or bronchiolitis, sepsis (a bacterial infection of the bloodstream, also called septicaemia), an infection of the brain (meningitis), a throat abscess, or another problem. Antibiotics, oxygen, and other medicines are lifesaving in some of these children.

CONVULSIONS,

ABNORMALLY SLEEPY OR DIFFICULT TO WAKE

A child who has had convulsions or who is abnormally sleepy or difficult to wake may have very severe pneumonia resulting in the child taking in too little oxygen (hypoxia), sepsis or cerebral malaria, or meningitis. Meningitis can develop as a complication of pneumonia, or it can occur on its own.

STRIDOR

If a calm child has stridor, the child may be in danger of a life-threatening airway obstruction from swelling of the larynx, trachea, or epiglottis.

SEVERE UNDER-NUTRITION

A severely undernourished child has an increased risk of developing and dying from pneumonia. In addition, the child may not show typical signs of illness.

TREATMENT:

A child that is classified as having a very severe disease is VERY ill, and should be referred URGENTLY to a hospital:

* Before the child leaves the health centre, the health worker should provide any treatment needed, write a note to the referral hospital, and make sure that the mother is willing and is able to take the child to the hospital immediately. (Annex A has a more detailed description of how to refer a child to a hospital.)

Danger Signs
Not able to drink → Severe pneumonia, bronchiolitis, septicaemia, meningitis, throat abscess
Convulsions → Severe pneumonia ± hypoxia
Abnormally sleepy → Sepsis, Cerebral malaria, Meningitis ± / ~ Severe pneumonia
Stridor → ... swelling of larynx/trachea/epiglottis — Airway Obstruction
Severe under nutrition → Increased risk of death. may exist ~ but typically signs of illness eg. afebrile (mulnum TB)

* Give the first dose of antibiotic before the child leaves the health centre. You should also treat fever if present. Give the antibiotic by injection if child is unconscious or cannot drink.

* If referral is not feasible, follow the recommendations in Annex B.

Management of a child age 2 months up to 5 years with danger signs is summarized on the chart below:

SIGN :	• Not able to drink, • Convulsions, • Abnormally sleepy or difficult to wake, • Stridor in calm child, • Wheezing in calm child, • Severe undernutrition.
CLASSIFY AS :	VERY SEVERE DISEASE
TREATMENT :	▸ Refer URGENTLY to hospital. ▸ Give first dose antibiotic. ▸ Treat fever if present.

Locate this section on the full-sized chart.

If you identified a danger sign in the preceding step, you have already classified the child's illness, and you know to refer the child urgently. Do not try to also determine if the child has pneumonia. **Each child should be put in a single classification.** However, if you did **not** identify a danger sign, the next step is to use the clinical information from the assessment to decide.

2.3 Does the child have pneumonia?

Ask this question only about children who do not have danger signs. The child without danger signs is classified as having either:

Severe Pneumonia,
Pneumonia (not severe), or
No Pneumonia: Cough or Cold.

On the following pages is a description of each of these classifications. Read this information carefully so that you know what signs to look for. The most important signs to consider when deciding if the child has pneumonia are:

* the child's **breathing rate**, and
* whether or not there is **chest indrawing**

Look at the chart to find the one box that matches the child's signs. By first deciding if the child has a Very Severe Disease, and then deciding if he has pneumonia, you will be less likely to overlook an important sign and miss treating a sick child.

Locate the signs and classifications of pneumonia in the boxes below. Then find these boxes on the full-sized chart.

Does the child have pneumonia?				
	SIGNS :	• Chest indrawing.	• No chest indrawing, and • Fast breathing.. (50 per minute or more if child 2 months up to 12 months; 40/minute or more if child 12 months up to 5 years).	• No chest indrawing, and • No fast breathing. (Less than 50 per minute if child 2 months up to 12 months; less than 40 per minute if child 12 months up to 5 years).
	CLASSIFY AS:	SEVERE PNEUMONIA	PNEUMONIA	NO PNEUMONIA: COUGH OR COLD
	TREATMENT :	▸ Refer URGENTLY to hospital. ▸ Give first dose antibiotic ▸ Treat fever, if present. (If referral is not feasible, treat with antibiotic and follow closely).	▸ Advise mother to give home care. ▸ Give antibiotic. ▸ Treat fever, if present. ▸ Advise mother to return with child in 2 days for reassessment, or earlier if the child is getting worse.	▸ If coughing more than 30 days, refer for assessment. ▸ Assess and treat other problems. ▸ Advise mother to give home care. ▸ Treat fever if present.

SEVERE PNEUMONIA

A child with:

Chest indrawing

is classified as having *Severe Pneumonia.*

A child with chest indrawing usually has severe pneumonia. Chest indrawing occurs when the lungs become stiff and the effort required to breathe in is much greater than normal.

A child with chest indrawing may not have fast breathing. If the child becomes tired, and if the effort needed to expand the stiff lungs is too great, then the child's breathing slows down. Therefore, chest indrawing may be the only sign that the child has severe pneumonia. A child with chest indrawing is at higher risk of death from pneumonia than the child with fast breathing without chest indrawing.

THE CHILD WITH CHEST INDRAWING HAS A SEVERE PNEUMONIA
Do not proceed to determine whether the child has pneumonia or not.
You must refer a child with severe pneumonia.

A child with severe pneumonia might also have other signs:

- Nasal flaring, when the nose widens as the child breathes in.
- Grunting, the short sounds made with the voice when the child has difficulty breathing.
- Cyanosis, a blue skin colour, caused by hypoxia. A child with a cyanosed tongue needs oxygen.

A child with any of these other signs will also have chest indrawing or danger signs of very severe disease. Therefore, it is not necessary to teach these other possible signs to health workers. Teaching of these signs will confuse the health worker and make the task of the trainer more complex.
Some children with chest indrawing also have wheezing. Children who have chest indrawing and a **first episode** of wheezing often have severe pneumonia. However, children with chest indrawing and **recurrent** wheezing most often do NOT have severe pneumonia. Chest indrawing in these children is caused by the recurrent wheezing (asthma), rather than severe pneumonia. Therefore, they must be managed somewhat differently. They must be further assessed before you can decide what kind of treatment is needed.

TREATMENT:

Treat a child with severe pneumonia by referring him urgently to a hospital:

* The child should receive a first dose of antibiotic.

* Fever and wheezing, if present, should be treated.

Management of the child with severe pneumonia is summarized on the chart below:

SIGN	• Chest indrawing
CLASSIFY AS	SEVERE PNEUMONIA :
TREATMENT	► Refer URGENTLY to hospital. ► Give first dose antibiotic. ► Treat fever if present. (If referral is not feasible, treat with antibiotic and follow closely.)

How to give an antibiotic, and treat fever are described in detail in Chapter 4.

If referral is not feasible, see the recommendations in Annex B.

PNEUMONIA (not severe)

A child who has:

No chest indrawing
and has
Fast breathing
(50 per minute or more if 2 months up to 12 months
or 40 per minute or more if 12 months up to 5 years)

is classified as having *Pneumonia (not severe).*

A child with fast breathing and no chest indrawing has pneumonia which is not severe. Most children with pneumonia do not have severe pneumonia, especially if they are brought early for treatment.

TREATMENT:

The child with pneumonia (not severe) should be treated at home with an antibiotic for 5 days :

* Infections of the respiratory tract are caused by viruses or bacteria:

  Bacteria are killed by an antibiotic. In developing countries, pneumonia is often caused by bacteria. Antibiotic treatment can thus prevent many deaths from pneumonia if given early enough in the infection.

  Antibiotics do not kill viruses. Although pneumonia can also be caused by a virus, there is no easy or reliable way to distinguish viral from bacterial pneumonia. For this reason, it is necessary to give the child an antibiotic whenever the child has signs of pneumonia.

* The mother must receive instructions on home care, including when to return if the child is getting worse and how to give the antibiotic.

* She should also be advised to return with the child in 2 days (48 hours later) for reassessment, or earlier if the child's breathing becomes more difficult or faster, he is not able to drink, or he seems sicker.

* Reassessment of the child on antibiotic therapy is very important because a few children will not respond to the antibiotic.

Management of the child with pneumonia is summarized on the chart above :

• No chest indrawing, and • Fast breathing. (50 per minute or more if child 2 months up to 12 months; 40/minute or more if child 12 months up to 5 years).
PNEUMONIA
▸ Advise mother to give home care. ▸ Give antibiotic. ▸ Treat fever, if present. ▸ Advise mother to return with child in 2 days for reassessment, or earlier if the child is getting worse.

	Reassess in 2 days a child who is taking an antibiotic for		
	WORSE		IMPROVING
SIGNS :	• Not able to drink. • Has chest indrawing. • Has other danger signs.	THE SAME	• Breathing slower. • Less fever. • Eating better.
TREATMENT :	▸ Refer URGENTLY to hospital.	▸ Review antibiotic or refer	▸ Finish 5 days of antibiotic.

In a child who has fast breathing do not go to the next section of NO PNEUMONIA since you have already classified him as suffering from Pneumonia.

NO PNEUMONIA: COUGH OR COLD

A child who has:

No chest indrawing
and
No fast breathing
(Less than 50 per minute if 2 months up to 12 months
or less than 40 per minute if 12 months up to 5 years)

is classified as having *No Pneumonia: Cough or Cold.*

Most children with cough or difficult breathing do not have any danger signs or signs of pneumonia (chest indrawing or fast breathing). These children have a cough or cold. They are classified as having "No Pneumonia: Cough or Cold".

TREATMENT:

Treat the child who is classified as having "No Pneumonia: Cough or Cold" by advising the mother to give home care:

* **DO NOT GIVE AN ANTIBIOTIC** to a child with a cough or cold who has no signs of pneumonia. ***It will not relieve the symptoms or prevent the cold from developing into pneumonia.***

* Although the child with a cough or cold does not need an antibiotic, the mother has brought the child to clinic for an illness which concerns her. These concerns need to be addressed and advice given on good home care. It is very important that she watch for signs of pneumonia and return if these develop. Good care for the child with a cough or cold will help assure that the mother will return for further treatment if the child does develop pneumonia.

However, some children with a cough or cold have additional problems that you must consider:

* Normally a child with a cold will get better in one to two weeks. However, a child with a chronic cough (coughing more than 30 days) may have tuberculosis, asthma, whooping cough or another problem. Refer the child with a chronic cough to a hospital for further assessment.

HEALTH
LIBRARY

- Assess and treat other problems such as diarrhoea, undernutrition, or skin problems. Check the child's immunization status and immunize if needed.

Management of the child with No Pneumonia: Cough or Cold is summarized on the chart below:

SIGN :	• No chest indrawing and • No fast breathing (Less than 50 per minute if child 2 months up to 12 months; Less than 40/per minute if child 12 months up to 5 years.)
CLASSIFY AS :	NO PNEUMONIA : COUGH OR COLD
TREATMENT :	▶ If coughing more than 30 days, refer for assessment. ▶ Assess and treat other problem ▶ Advise mother to give home care. ▶ Treat fever if present.

Advice on home care and how to treat fever are described in Chapter 4.

In this chapter, you have learned about the four classifications of illness for a child age 2 months up to 5 years, and how to decide in which classification a child belongs. The examples below illustrate how to use the chart to classify a child's illness, and how to avoid missing important signs.

EXAMPLE ONE:

Karuna is 2 years old. Her mother brought her to the health centre because she had a cough and runny nose. After completing the assessment, the health worker learned that Karuna had a slight fever (38.5°C), but no other signs of illness.

The health worker looked at the case management chart, *Management of the Child with Cough or Difficult Breathing*. Using the boxes for children age 2 months up to 5 years, he:

* First asked if the child had danger signs, and compared Karuna's list of signs to the signs that correspond to Very Severe Disease. None of her signs were listed there, so he did not classify her as having Very Severe Disease.

* Next, he asked himself if she had pneumonia. Karuna had neither chest indrawing nor fast breathing. Therefore, the health worker classified Karuna as having "No Pneumonia: Cough or Cold".

EXAMPLE TWO:

Babu's mother brought him to the health centre because he had difficult breathing. After completing the assessment, the health worker learned that 18-month old Babu was not able to drink and had stridor when calm. He had chest indrawing, but did not have fast breathing (35 times per minute).

The health worker looked at the case management chart, *Management of the Child with a Cough or Difficult Breathing*. Then, using the boxes for children age 2 months up to 5 years, he:

* First, asked if the child had danger signs, and compared Babu's list of signs to the signs that correspond to Very Severe Disease. Since Babu had two of the danger signs listed (not able to drink, and stridor when calm), the health worker classified Babu as having a Very Severe Disease.

* Even though Babu also had chest indrawing, the health worker did not use this sign to classify Babu's illness. Since each child should only be classified for one disease, the health worker stopped trying to classify the illness as soon as he decided Babu had a Very Severe Disease.

EXAMPLE THREE:

Mohammed is a 6-month old child whose mother brought him to the health centre because he had been coughing for two days. After completing the assessment, the health worker learned that he was abnormally sleepy and difficult to wake, and that he had fast breathing (58 times per minute).

The health worker looked at the case management chart, *Management of the Child with Cough or Difficult Breathing*. Using the boxes for children age 2 months up to 5 years, he:

* Focused immediately on the fact that Mohammed had fast breathing but no chest indrawing, and classified him as having "Pneumonia (not severe)".

Fortunately, the health centre supervisor noticed that Mohammed was being treated for Pneumonia, even though he also had the danger sign, abnormally sleepy and difficult to wake. The supervisor reminded the health worker that it is very important to first compare the child's signs of illness with the signs that correspond to Very Severe Disease, so that important signs (such as abnormally sleepy or difficult to wake) are not overlooked. The supervisor then classified Mohammed as having Very Severe Disease, and referred him immediately to a hospital.

SUMMARY REVIEW
Classify the Illness of
The Child Age 2 Months up to 5 Years

* VERY SEVERE DISEASE:

A child with any **danger sign** is classified as having **Very Severe Disease**.
The danger signs are:

Not able to drink
Convulsions
Abnormally sleepy or
difficult to wake
Stridor in calm child
Severe undernutrition
Wheezing in calm child

A child with very severe disease should be referred urgently to the hospital.

* SEVERE PNEUMONIA:

A child with **chest indrawing** is classified as having **Severe Pneumonia**. The child should be referred urgently to the hospital.

* PNEUMONIA (not severe):

The cutoffs for fast breathing are:

50 times per minute or more
if the child is age 2 months up to 12 months;

40 times per minute or more
if the child is age 12 months up to 5 years.

A child with **fast breathing** and no chest indrawing is classified as having **Pneumonia** (not severe).

Children with pneumonia should be given antibiotics for 5 days and home care.

Mothers of children with pneumonia should be told to bring the child back after two days for reassessment, or earlier if the child worsens.

* NO PNEUMONIA: COUGH OR COLD

A child who is not having chest indrawing, and who does not have fast breathing is classified as having **No Pneumonia: Cough or Cold**.

He should be given home care. He should NOT be given antibiotics.

EXERCISE C

In this exercise you will assess, classify the illness, and identify a treatment plan for five children. Assume that you are a health worker in a rural health centre. Be prepared to present your plans to the rest of the group when you have finished.

CASE ONE: Tapan

1. Read the following case information.

   Tapan's mother brought her one-year old son to your health centre because he has had a cough for one week and is now having a problem breathing. She tells you that Tapan has refused all food but is breast-feeding.

   In response to your assessment questions, Tapan's mother adds that he has not had a fever or convulsions. When you examine Tapan, you find that he is breathing 63 times a minute. The lower part of his chest goes in when he breathes in. There is no noise as he breathes. His body does not feel hot. Although he appears weak, he is alert to sounds around him and is of normal weight for his age.

2. List all of Tapan's signs of illness in the space below.

   → Cough
   — Difficulty in breathing
   — Breathing 63/min
   — Refusing to take food
   — Indrawing

3. Circle on the chart on the next page only those signs you will use to classify Tapan's illness. Then circle the appropriate classification for Tapan's illness. Severe pneumonia

4. Look at the treatment plan under the classification in which you put Tapan, and tell what you would do by circling the appropriate steps.

   — 1st dose
   — Compare

THE CHILD
AGE 2 MONTHS UP TO 5 YEARS

Does the child have danger signs?

SIGNS :	• Not able to drink, • Convulsions, • Abnormally sleepy or difficult to wake, • Stridor in calm child, • Wheezing in calm child, • Severe undernutrition.
CLASSIFY AS:	VERY SEVERE DISEASE
TREATMENT :	► Refer URGENTLY to hospital. ► Give first dose antibiotic. ► Treat fever, if present.

Does the child have pneumonia?

SIGNS :	• Chest indrawing.	• No chest indrawing, and • Fast breathing (50 per minute or more if child 2 months up to 12 months; 40 per minute or more if child 12 months up to 5 years).	• No chest indrawing, and • No fast breathing. (Less than 50 per minute if child 2 months up to 12 months; less than 40 per minute if child 12 months up to 5 years).
CLASSIFY AS:	SEVERE PNEUMONIA	PNEUMONIA	NO PNEUMONIA: COUGH OR COLD
TREATMENT :	► Refer URGENTLY to hospital. ► Give first dose antibiotic ► Treat fever, if present. (If referral is not feasible, treat with antibiotic and follow closely).	► Advise mother to give home care. ► Give antibiotic. ► Treat fever, if present. ► Advise mother to return with child in 2 days for reassessment, or earlier if the child is getting worse.	► If coughing more than 30 days, refer for assessment. ► Assess and treat other problems. ► Advise mother to give home care. ► Treat fever if present.

	Reassess in 2 days a child who is taking an antibiotic for pneumonia:		
SIGNS :	WORSE • Not able to drink. • Has chest indrawing. • Has other danger signs.	THE SAME	IMPROVING • Breathing slower. • Less fever. • Eating better.
TREATMENT :	► Refer URGENTLY to hospital.	► Review antibiotic or Refer.	► Finish 5 days of antibiotic.

Assess and classify the illness of the following four cases. Fold out the case management chart and refer to it as you do the exercise. Instead of circling your findings on a chart, write them in the space provided below the description of each case.

CASE TWO: Gurpreet

1. Read the following case information.

> Gurpreet's mother brought her to the health centre because she was having problems breathing and was becoming very weak from the effort. Gurpreet is 8 months old and has had a cough for 5 days. In response to the assessment questions, the mother said that Gurpreet could not drink. Gurpreet did not have a fever, or anything that might indicate she had a convulsion.
>
> The health worker looked at the child and found that Gurpreet made a harsh noise when she breathed in. There was chest indrawing. She was breathing 42 breaths per minute. She did not have a fever and did not seem undernourished. However, she was very weak and did not seem to be responding to people and sounds around her.

2. List all of Gurpreet's signs of illness in the space below.

— Inability to drink
— cough
— dyspnoea
— stridor when calm
— chest indrawing
— abnormally sleepy

3. Record how you would classify Gurpreet's illness by writing the classification in the space below. Also list the signs you used to classify her illness.

— Inability to drink
— abnormally sleepy
— stridor

4. Look at the treatment plan under the classification in which you put Gurpreet, and record what you would do in the space below.

— Very severe

CASE THREE: Geeta

1. Read the following case information.

   Geeta's mother has brought her to see you. She said that Geeta has been coughing for a few days.

   You ask her mother the assessment questions. Geeta is an 18-month old child. You find out that, although Geeta has been able to drink until this morning, she is now not able to drink. Her mother is not aware that Geeta has had any convulsions. However, she thinks that Geeta has been a little hotter than usual to touch.

   Geeta is sleeping quietly in her mother's lap. You do not hear noises when she breathes, and do not find chest indrawing. She is breathing 38 breaths per minute. She does not have a fever. She is very tiny for her age and appears very wasted. When her mother moves her, Geeta wakes up.

2. List all of Geeta's signs of illness in the space below.

   - Cough
   - not able to drink
   - fever - no
   - wasted

3. Record how you would classify Geeta's illness by writing the classification in the space below. Also list the signs you used to classify her illness.

   - Not able to drink
   - Wasted

   Very severe

4. Look at the treatment plan under the classification in which you put Geeta, and record what you would do by writing it in the space below.

   - Refer
   - IM dose

CASE FOUR: Ahmed

1. Read the following case information.

   Ahmed is a three-year-old boy who was brought to the health centre for the second time. Two weeks ago, a health worker saw Ahmed because he had a fever, a runny nose, and a rash. He then began to cough. You learn from his mother that Ahmed is eating rice and soup, although he has vomited twice today. He has felt warm the last two days but has had no convulsions.

   When you examine Ahmed you find that he is taking 55 breaths per minute. The skin between the ribs goes in slightly on inspiration, but there is no chest indrawing and no noise when he breathes. He is not particularly sleepy. He has a temperature of 39.2°C, and there is no malaria in the area. He is somewhat small for his age, but does not appear severely undernourished.

2. List all of Ahmed's signs of illness in the space below.

3. Record how you would classify Ahmed's illness by writing the classification in the space below. Also list the signs you used to classify his illness.

4. Look at the treatment plan under the classification in which you put Ahmed, and record what you would do by writing it in the space below.

CASE FIVE: Anu

1. Read the following case information.

   A mother brought her eight-month-old daughter, Anu, to your facility. She says that Anu has coughed for about eight days, but continues to breast-feed.

   As you ask her mother your assessment questions, Anu is sleeping quietly in her mother's arms. You can see her clothes moving as she breathes. She breathes quietly and there is no chest indrawing. She is taking 40 breaths per minute. She is of normal weight for her age. Anu wakes up when her mother moves her, but remains calm. You take her temperature and find that it is 39°C (there is no malaria in the area). She does not seem to have ear pain or a sore throat.

2. List all of Anu's signs of illness in the space below.

3. Record how you would classify Anu's illness by writing the classification in the space below. Also list the signs you used to classify her illness.

4. Look at the treatment plan under the classification in which you put Anu, and tell what you would do by writing it in the space below.

When you have finished with this case tell the facilitator.

Chapter 3
Classify The Illness of the Young Infant (Age Less than Two Months)

In this chapter you will use the signs from the assessment to classify the illness of the young infant with cough or difficult breathing, and identify the appropriate treatment plan. The process is similar to the one you learned in Chapter 2 for the child age 2 months up to 5 years.

However, young infants have special characteristics that must be considered when classifying their illness.
They can become sick and die very quickly from serious bacterial infections, are much less likely to cough with pneumonia.
Mild chest indrawing is normal in young infants because their chest wall bones are soft.

The presence of these characteristics means that you will assess, classify and treat the young infant somewhat differently than an older child. The differences between the two age groups are described in detail in this chapter, but a summary of the most important differences are:

* Some of the danger signs are different. In a young infant, danger signs include "stopped feeding well", "fever or low body temperature", and "wheezing".

* The sign "severe undernutrition" is not used as a danger sign in young infants, although it is used as a danger sign in the older child.

* A young infant must have **severe** chest indrawing to be classified as having severe pneumonia. A child age 2 months up to 5 years is classified as having severe pneumonia if there is **any** chest indrawing that is clearly visible.

* The cutoff for fast breathing is different. In the young infant age less than two months, the child has fast breathing when he is breathing 60 time per minute or more. In the child age 2 months up to 12 months, the child has fast breathing when he is breathing 50 times per minute or more. In the child age 12 months up to 5 years, the child has fast breathing when he is breathing 40 times per minute or more.

* Any pneumonia in young infants is considered to be "severe". It canno be treated at home, and should be referred immediately to a hospital. In contrast, older children can be classified as having "pneumonia" (which can be treated at home with an antibiotic), or "severe pneumonia" (which is referred urgently to a hospital).

3.1 Identify the boxes on the chart that describe how to classify the illness of the young infant.

Look at the case management chart on the wall and find the boxes under the heading, "Classify the Illness". Then find the subheading:

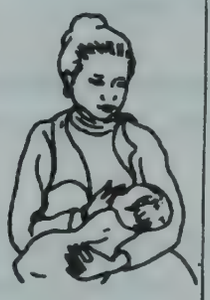
* THE YOUNG INFANT
(AGE LESS THAN TWO MONTHS)

Use the boxes below this subheading to classify the illness of a young infant. These boxes are reproduced below:

THE YOUNG INFANT
AGE LESS THAN 2 MONTHS

Does the young infant have danger signs?

SIGNS :	• Stopped feeding well, • Convulsions, • Abnormally sleepy or difficult to wake, • Stridor in calm infant, • Wheezing in calm infant, • Fever or low body temperature.	
CLASSIFY AS:	VERY SEVERE DISEASE	
TREATMENT :	> Refer URGENTLY to hospital. > Give first dose antibiotic.	

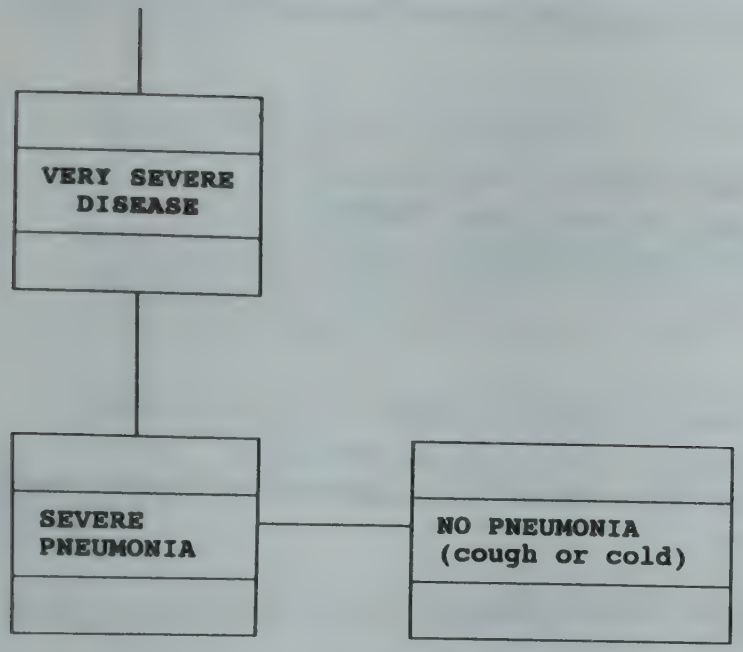


Does the young infant have severe pneumonia?

SIGNS :	• Severe chest indrawing, and or • Fast breathing • (60 per minute or MORE)	• No severe chest indrawing, and • No fast breathing.. (Less than 60 per minute).
CLASSIFY AS:	SEVERE PNEUMONIA	NO PNEUMONIA COUGH OR COLD
TREATMENT :	> Refer URGENTLY to hospital. > Keep young infant warm. > Give first dose antibiotic. > Continue to breast-feed during referral. (If referral is feasible, treat with antibiotic and follow closely).	> Advise mother to give following home care : > Keep young infant warm. > Breast-feed frequently. > Clear nose if it interferes with feeding. > Return quickly if : > Breathing becomes difficult. > Breathing becomes fast. > Feeding becomes a problem. > The young infant becomes sicker.

IMPORTANT

While classifying the illness in a young infant, follow systematically the order shown in the illustration. You should stop if you find any positive sign in the box that you are checking.



3.2. Decide if the young infant has VERY SEVERE DISEASE.

As stated earlier, there are three classifications of illness for a young infant with a cough or difficult breathing: Very Severe Disease, Severe Pneumonia, and No Pneumonia: Cough or Cold. To classify the young infant's illness, you must follow the steps as they are presented in this chapter. The first step is to decide if the young infant has a Very Severe Disease.

You can decide if a young infant has a very severe disease by using the clinical information from the assessment to decide if the young infant has a "danger sign". **Ask this question about EVERY young infant with a cough or difficult breathing:**

Does the child have danger signs?

A young infant with:

Any danger sign

is classified as having a *Very Severe Disease.*

A young infant with a danger sign may have a very severe disease, and be at high risk of dying. It is difficult to distinguish between infections such as pneumonia, sepsis and meningitis in such an infant. However, it is not necessary to make this distinction. You must only recognize the danger signs and know that the young infant has a very severe disease.

Some of the danger signs in children age 2 months up to 5 years are also danger signs in young infants:

CONVULSIONS, ABNORMALLY SLEEPY OR DIFFICULT TO WAKE	A young infant with these signs may have hypoxia, sepsis, or meningitis. (Malaria infection is unusual in infants)
STRIDOR IN CALM INFANT	Infections causing stridor are rare in young infants. A young infant who has stridor when calm should be classified as having very severe disease.

However, some signs are danger signs in a young infant, but not in an older child:

STOPPED FEEDING WELL	If a young infant stops feeding well (that is, takes less than half of the usual amount of milk), this is a danger sign.[8]
FEVER, OR FEELS TOO COLD	Fever (38°C or more) is uncommon in the first two months of life and more often means a serious bacterial infection than in older children. In addition, fever may be the only sign of a serious bacterial infection. Young infants can also respond to infection by dropping their temperature below normal (hypothermia).

There are some danger signs in older child (2 months upto 5 years) which are not considered as danger in young infant.

UNDERNUTRITION	Undernutrition is a danger sign in an older child. In young infant undernutrition is not a danger sign since upto one third babies are low birth weight. They need to be referred for any additional problems they may have.

[8] Older children often stop feeding well with respiratory infections, but this is not a danger sign for them. The danger sign in the older child is "not able to drink".

TREATMENT:

The treatment for a young infant with any danger sign is **URGENT** referral to a hospital:

* Write a note to the referral hospital, and make sure that the mother is willing and is able to take the young infant to the hospital immediately.

* Give the first dose of antibiotic.

* Keeping a sick young infant warm is very important. Low temperature alone can kill young infants. Wrapping the young infant next to the mother is a good way to keep him warm while en route to the hospital.

* During transfer continue to breast feed the young infant.

Management of the young infant with danger signs is summarized on the chart below:

Does the young infant have danger signs ?

SIGN :	• Stopped feeding well, • Convulsions, • Abnormally sleepy or difficult to wake, • Stridor in calm infant, • Wheezing in calm infant, • Fever or low body temperature.
CLASSIFY AS :	VERY SEVERE DISEASE
TREATMENT :	► Refer URGENTLY to hospital. ► Give first dose antibiotic.

Locate this section on the full-sized chart now.

If you identified a danger sign in the preceding step, you have already classified the young infant's illness, and you know to refer the young infant urgently to a hospital. Do not try to also determine if the young infant has pneumonia. **Each young infant should be put in a single classification.**

However, if you did **not** identify a danger sign, the next step is to use the clinical information from the assessment to decide:

Does the child have pneumonia?

Ask this question only about young infants who do not have danger signs. The young infant without danger signs has either:

Severe pneumonia,
or
No pneumonia: Cough or Cold.

Note that the classification, "Pneumonia (not severe)" is not included, as it was for older children. Young infants can become sick and die **very quickly** from serious bacterial infections such as pneumonia, sepsis and meningitis. Therefore, any young infant who has a sign of pneumonia is classified as having "severe pneumonia".

On the following pages is a description of the two classifications that apply to young infants. Read this information carefully so that you know what signs to look for. The most important signs to consider when deciding if the young infant has pneumonia are:

* the **breathing rate**, and
* whether or not there is **severe chest indrawing**

Look at the chart to find the one box that matches the young infant's signs. By first deciding if the young infant has a Very Severe Disease, and then deciding if he has pneumonia, you will be less likely to overlook an important sign and miss treating a sick young infant.

Locate the signs of pneumonia and classifications of "Severe pneumonia" and "No pneumonia : Cough or Cold" in boxes below. Then find these boxes on the full-zised chart.

Does the young infant have severe pneumonia?

SIGNS :	• Severe chest indrawing, and or • Fast breathing • (60 per minute or MORE)	• No severe chest indrawing, and • No fast breathing.. (Less than 60 per minute).
CLASSIFY AS:	SEVERE PNEUMONIA :	NO PNEUMONIA : COUGH OR COLD
TREATMENT :	▸ Refer URGENTLY to hospital. ▸ Keep young infant warm. ▸ Give first dose antibiotic. ▸ Continue to breast-feed during referral. (If referral is not feasible, treat with antibiotic and follow closely).	▸ Advise mother to give following home care : ▸ Keep young infant warm. ▸ Breast-feed frequently. ▸ Clear nose if it interferes with feeding. ▸ Return quickly if : ▸ Breathing becomes difficult. ▸ Breathing becomes fast. ▸ Feeding becomes a problem. ▸ The young infant becomes sicker.

SEVERE PNEUMONIA

A young infant who has:

Fast *breathing*
(60 times per minute or more),
and / or
Severe chest indrawing

is classified as having *Severe Pneumonia.*

Young infants normally breathe faster than older children. The breathing rate of a healthy young infant can be more than 50 breaths per minute. Therefore, a rate of 60 breaths per minute is used to identify fast breathing in a young infant.

REMEMBER:

Fast breathing in a young infant is 60 per minute or more.

Mild chest indrawing is normal in young infants because their chest wall bones are soft. However, severe chest indrawing (very deep and easy to see) is a sign of pneumonia.

Since pneumonia in a young infant can progress very rapidly to death, all pneumonia is considered severe in this age group.

TREATMENT:

Treat the young infant with severe pneumonia by referring him URGENTLY to a hospital. He needs antibiotics by injection. Home care with antibiotics is much less effective and is not recommended.

* Write a note to the referral hospital, and make sure that the mother is willing and is able to take the young infant to the hospital immediately.

* Give the first dose of antibiotic.

* Keeping a sick young infant warm is very important. Low temperature alone can kill young infants. Wrapping the young infant next to the mother is a good way to keep him warm while en route to the hospital.

* Continue to breast feed the young infant while taking him to the hospital.

Management of the young infant with severe pneumonia is summarized on the chart below:

SIGN :	• Severe chest indrawing or • Fast breathing (60 per minute or MORE.)
CLASSIFY AS :	SEVERE PNEUMONIA :
TREATMENT :	► Refer URGENTLY to hospital. ► Keep young infant warm. ► Contimue to breast feed the young infant during referral. ► Give first dose antibiotic.

Help the mother take the young infant to the hospital. Home care with antibiotics is much less effective. Follow the recommendations in Annex B if referral is not feasible.

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NO PNEUMONIA: COUGH OR COLD

A young infant who has:

No Fast breathing
(less than 60 times per minute),
and has
No chest indrawing or danger signs

is classified as having *No Pneumonia: Cough or Cold.*

Young infants who have neither fast breathing nor chest indrawing, and have no danger signs, do not have pneumonia. They have a simple cough or cold.

TREATMENT:

The young infant who does not have signs of pneumonia (or danger signs) can be treated at home without antibiotics. Give the mother advice on how to care for the young infant at home:

* Emphasize that it is important she:

  - o Keep the young infant warm,
  - o Continue to breast-feed,
  - o Clear the nose if it interferes with feeding.

* A young infant can become very sick very quickly. Treat the young infant by telling the mother to return immediately if:

  - o Breathing becomes difficult,
  - o Breathing becomes fast,
  - o Feeding becomes a problem, or
  - o The young infant becomes sicker.

Management of the young infant with No Pneumonia : Cough or Cold is summarized on the chart below:

• No severe chest indrawing. and • No fast breathing. (Less than 60 per minute)
NO PNEUMONIA: COUGH OR COLD
▸ Advice mother to give the following home care: ▸ Keep young infant warm. ▸ Breast-feed frequently. ▸ Clear nose if interferes with feeding. ▸ Return quickly if: ▸ Breathing becomes difficult. ▸ Breathing becomes fast. ▸ Feeding becomes a problem. ▸ The young infant becomes sicker

▶ *Advise mother to give home care*

▶ Feed the young infant
- ▶ Feed the young infant during illness.
- ▶ Increase feeding after illness.
- ▶ Continue to breast feed normally.
- ▶ Clear the nose if it interferes with feeding.

▶ Increase fluids
- ▶ Offer the young infant extra to drink.
- ▶ Continue breast feeding frequently.

▶ Keep the young infant warm
- ▶ **Soothe the throat to relieve the cough with a safe remedy.**
- ▶ **Most important : A young infant can become sick very quickly Return immediately if :**
- ▶ Breathing becomes difficult.
- ▶ Breathing becomes fast.
- ▶ Feeding becomes a problem.
- ▶ The young infant becomes sicker.

In this chapter, you have learned about the three classifications of illness for a young infant with a cough or difficult breathing. The examples below illustrate how to use the chart to classify the young infant's illness, and how to avoid missing important signs.

EXAMPLE ONE:

Subu's mother brought him to the health centre because he was breathing in an unusual manner. After completing the assessment, the health worker learned that 14-day old Subu had fast breathing (65 times per minute on the first count, and 72 times per minute on the second count). Subu had mild, but not severe, chest indrawing.

The health worker looked at the case management chart, *Management of the Child with Cough or Difficult Breathing*. Then, using the boxes for the young infant age less than 2 months, he:

* First, asked himself if Subu had danger signs, and compared Subu's signs to the signs that correspond to Very Severe Disease. His signs were not listed there, so the health worker did not classify Subu as having a Very Severe Disease.

* Then he asked if Subu had pneumonia. The health worker decided that Subu should be classified as having Severe Pneumonia, since Subu had fast breathing (but not severe chest indrawing).

EXAMPLE TWO:

Salma is six weeks old. Her mother brought her to the health centre because she was coughing and seemed sick. After completing the assessment, the health worker learned that Salma had stopped feeding well (less than half of what she normally breastfed), but had no other sign of illness.

The health worker looked at the case management chart, *Management of the Child with Cough or Difficult Breathing*. Then, using the boxes for the young infant age less than 2 months, he:

* Immediately focused on the fact that Salma did not have fast breathing or chest indrawing, and classified her as having "No Pneumonia: Cough or Cold".

Fortunately, the mother returned the next day because Salma seemed worse. A more experienced health worker saw that she had stopped feeding well, classified her as having Very Severe Disease, and referred her urgently to a hospital. He reminded the first health worker that it is very important to ask if the child has danger signs, so that important signs (such as stopped feeding well) are not overlooked.

SUMMARY REVIEW
Classify the Illness of The Young Infant

* VERY SEVERE DISEASE:

A young infant with **any danger sign** is classified as having a **Very Severe Disease**. The danger signs are:

Stopped feeding well
Convulsions
Abnormally sleepy or
difficult to wake
Stridor or wheezing when calm
Fever or feels too cold

The young infant with very severe disease should be referred URGENTLY to a hospital.

* SEVERE PNEUMONIA:

A young infant who breathes 60 times per minute or more has fast breathing.

A young infant who has **fast breathing** and or **severe chest indrawing** is classified as having **Severe Pneumonia.**

The young infant with severe pneumonia should be referred URGENTLY to a hospital.

* NO PNEUMONIA: COUGH OR COLD

A young infant who is **breathing less than 60 times per minute**, and has **no severe chest indrawing or danger signs**, is classified as having **No Pneumonia: Cough or Cold.**

Mothers of young infants with no pneumonia should be told to give home care, and to return immediately if the young infant's illness worsens, breathing becomes difficult or fast, or feeding becomes a problem.

Young infants with no pneumonia should not be given antibiotics.

EXERCISE D

In this exercise you will review the differences between managing (that is, assessing, classifying and treating) a child age 2 months up to 5 years and managing a young infant who has cough or difficult breathing.

a.) List five differences between managing a young infant and managing a child age 2 months up to 5 years:

1.

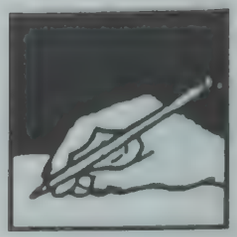
2.

3.

4.

5.

b.) Review the list above and select the two differences between the age groups that you think are most important. Do this by marking them with a star.



EXERCISE E

In this exercise, you will read the assessment information, classify the illness, and identify a treatment plan for two young infants. Assume that you are a health worker in an urban area. Record your answers by referring to the case management chart and writing your answers in the space provided on this page.

CASE ONE: Mary

1. Read the following case information.

   A mother brought her small baby girl Mary to the health centre because she was not nursing as well as she should be, and was having unusual breathing. Upon questioning, the health worker learns that the mother's breasts are engorged, and she thinks Mary has been taking less than one-half her usual amount of breastmilk. Mary is 13-days old and was born after a very long and difficult labour. Her mother tells you that the young infant has not had a fever. She does not think the baby has had convulsions, and says that Mary has been difficult to wake.

   The young infant's breathing rate is 62. On the next count, the rate has gone down to 55. There is mild chest indrawing. There is no noise when she breathes. The baby is very sleepy and cannot be wakened, even when shaken. You feel her armpit and calves, and find that she is not too hot nor too cold.

2. List all of Mary's signs of illness in the space below.

   → Not feeding well.
   → Not [illegible]
   ⇒

3. Record how you would classify Mary's illness by writing the classification in the space below. Also list the signs you used to classify her illness.

   Very Severe disease

4. Look at the treatment plan under the classification in which you put Mary, and tell what you would do by writing it in the space below.

   — Urgent Referral
   —
   —
   —

CASE TWO: Mohan

1. Read the case information below.

   Mohan is about three weeks old. His mother has brought him to the health centre today because he is coughing. She is having some difficulty breast-feeding him but he is still able to take almost normal amounts of milk. She says that he felt hot but has had no convulsions. When you examine Mohan you do not find chest indrawing or hear unusual sounds when he breathes. The first time you count his breathing, you find he is breathing 60 times per minute. The second time you count, you find he is breathing 50 times per minute. Mohan responds to your voice and looks at your face as you move it in front of him. He has a temperature of 37.8°C.

2. List all of Mohan's signs of illness in the space below.

   cough
   some difficulty in breast feeding

3. Record how you would classify Mohan's illness by writing the classification in the space below. Also list the signs you used to classify the illness.

   No pneumonia

4. Look at the treatment plan under the classification in which you put Mohan, and write what you would do in the space below.

   Home Care - B.F
   - warm
   - [illegible]
   - [illegible] to brine.

When you have finished this exercise, discuss your answers with a facilitator.

Chapter 4
Treatment Instructions

In Chapters 2 and 3 you classified the illness of a child with cough or difficult breathing and identified the appropriate treatment for each classification. In this chapter you will learn how to provide each of these treatments.

The treatments include:

- Give an antibiotic,
- Advise mothers to give home care,
- Treat fever

Look at the full-sized chart and find the heading, "Treatment Instructions". Then look at the boxes underneath this heading, and find the box that matches each of the three treatments listed above. Use these boxes when treating a child with a respiratory infection.

GIVE AN ANTIBIOTIC

Health Workers and doctors should treat children who have pneumonia with Cotrimoxazole tablets.

You and your health workers need to learn how to give cotrimoxazole in your health centre. Instructions are presented here for giving cotrimoxazole tablets.

NOTE: If the child cannot take an oral antibiotic (for example, if he is unable to drink or will not wake up), you will need to give a parenteral antibiotic. Since you cannot give parenteral antibiotics, refer the child as quickly as possible without giving the first dose.

Cautions About Giving cotrimoxazole:

* ***Do not give cotrimoxazole to a jaundiced baby, or to a premature baby less than one month old.***

* ***Do not give oral cotrimoxazole if the child is not able to drink, is abnormally sleepy or difficult to wake or has convulsions.***

* ***Do not give oral cotrimoxazole if the young infant is not able to feed, is abnormally sleepy or difficult to wake or has convulsions.***

GIVE THE FIRST DOSE OF THE ANTIBIOTIC

The child needs to receive the first dose of cotrimoxazole in the health centre, whether the child will be referred to a hospital or continued on treatment at home. (If the referral time is less than an hour, such as in an urban area, it may not be necessary to give the first dose at the health centre.) If the child is to be treated at home by the mother, the health worker should use this opportunity to demonstrate how to give the antibiotic.

Following are the steps in giving an antibiotic in tablet form:

1. Decide the right dose of antibiotic to give.

   a. Check the milligrams per tablet written on the package.

   b. Weigh the child. If a scale is not available, use the child's age to determine the dose.

   c. Use the dosing table on the bottom of the case management chart (reproduced on the next page) to determine the dose, based on the tablet and the age or weight of the child.

      EXAMPLE: To treat an 11-month-old child with pediatric cotrimoxazole tablets:

      - Check to make sure the tablet is a 20 mg tablet (the pediatric dosage).

      - Use the table to determine a single dose for an 11-month-old child: two 20 mg tablets. The total daily dose is four 20 mg tablets (i.e., two 20 mg tablets given twice each day). Give this amount each day for five days.

Use the table below to determine the correct dose for each child in need of antibiotic treatment :

► *GIVE COTRIMOXAZOLE*

- ► Give first dose cotrimoxazole if the child is to be referred.
- ► Instruct the mother to give the cotrimoxazole for five days at home and when to come back to assesment.

AGE or WEIGHT	COTRIMOXAZOLE trimethoprim + sulphamethoxazole ►Two times daily for 5 days	
	Adult Tablet single strength (80 mg trimethoprim + 400 mg sulphamethoxazole	Pediatric Tablet (20 mg trimethoprim + 100 mg sulphamethoxazole
2 months up to 12 months (6-9 kg)	1/2	2
12 months up to 5 years (10-19 kg)	1	3

*Give oral antibiotic for 5 days at home only if referral is not feasible.

COTRIMOXAZOLE IN YOUNG INFANT

▸ GIVE COTRIMOXAZOLE.

- ▸ Give first dose if the young infant is to be referred.
- ▸ Instruct the mother to how to give cotrimoxazole if she is unable to use referral services.

Age or weight.	COTRIMOXAZOLE (Trimethoprim+ Sulfamethoxazole). ▸ Two times daily for 5 days. Pediatric tablet (20 mg. Trimethoprim+ 100 mg. Sulfamethoxazole).
Less than 2 months.	1*

* If the infant is less than 1 month give 1/2 tablet twice daily.

Avoid Cotrimoxazole in infant less than 1 month age who are premature or jaundiced.

Do not give oral Cotrimoxazole if the yount infant is not able to feed, is abnormally sleepy or dificult to wake or has convulsions.

Crush the cotrimoxazole tablet and mix it with a small amount of food, milk or honey and water to make it easier for the child to swallow. Ask the mother what she has at home to mix the powder with, such as dal and rice or rice and curd . If the child is only breast-feeding, tell her she should mix expressed breast milk with the powder in a clean bowl. Mix cotrimoxazole with about one spoon ful of food or fluid. The sick child may refuse larger amounts.

Ask the mother to give the antibiotic to the child. The child may accept the antibiotic more easily from the mother. This also gives the mother a chance to try giving the antibiotic once before leaving the health centre. She will develop confidence in giving medicine at home. If the child spits out the drug or vomits within a half hour, repeat the dose.

TEACH THE MOTHER TO GIVE COTRIMOXAZOLE AT HOME

1. Explain carefully to the mother how much of cotrimoxazole to give, how many times daily, and when to give it. Write it down for her. If she cannot read, draw a simple picture.

2. Give the mother enough antibiotic for 5 days. Explain to the mother that she must:

   - Give the child the antibiotic for 5 days.
   - She must finish the five-day treatment, even if the child seems better.

3. Make sure that the mother understands all the instructions and will be able to carry them out. There are several ways to do this:

   - Ask the mother to repeat the instructions (e.g., the dosage). Then, correct any misinformation.
   - Ask the mother to demonstrate what she has heard. If necessary, show her again how to do the step correctly.
   - Help the mother plan how she will give cotrimoxazole on the dosing schedule. The time for giving the drug should be convenient for her.
   - Ask her what problems she might have giving the child cotrimoxazole. Then, help her to overcome any problems. For example:
     * If she is working away from home and will have difficulty giving all doses, help her identify someone who could care for the child and give the child cotrimoxazole when she is away.

4. Advise the mother on how to give home care (described later in this chapter).

5. Ask the mother to bring the child back to be reassessed in 2 days, or sooner if the child worsens. You need to reassess the child to see whether the child is improving with the antibiotic.

Treatment instructions should always end with the mother knowing what to do at home and how to do it.

REASSESS IN 2 DAYS A CHILD WHO IS TAKING COTRIMOXAZOLE FOR PNEUMONIA

The mother of any child receiving cotrimoxazole for pneumonia should bring the child back in two days, or sooner if the child worsens. During reassessment, follow the same procedures for assessing a child with cough or difficult breathing for the first time (See Chapter 1).

Use the information about the child's signs to decide whether the child is:

Worse
The same
Improving

* The child has **worsened** if the child has more difficult breathing, is not able to drink, has chest indrawing, or has other danger signs. This child needs urgent referral to a hospital,

* A child that is **improving** is breathing slower. He may also have other signs of improvement, such as less fever (the fever is lower or has gone completely), or eating better. The cough may still be present. Tell the mother to finish the 5 days of antibiotic.

* If the child is **the same** as at the last assessment, ask the mother whether the child received cotrimoxazole. There may have been problems so that the child did not receive any of the antibiotic, or received too low or too infrequent a dose. (For example, the child may have refused it, or it may have gotten ruined or lost.) If so, this child can be tried again on the same antibiotic.

  - o If the child was taking cotrimoxazole, switch to ampicillin, amoxycillin or procaine penicillin;

  - o Give the antibiotic for 5 days in the correct dosage.

If you do not have another appropriate antibiotic available, refer the child to a hospital.

ADVISE MOTHERS TO GIVE HOME CARE

Home care is very important for the child with an acute respiratory infection, and most children (about 80-90%) you manage will be treated with it. Good home care means the mother will:

* Feed the child to avoid weight loss. Weight loss can contribute to undernutrition.

* Increase fluids to avoid dehydration. Dehydration can weaken the child and make the child even sicker.

* Relieve the child's sore throat and cough.

* Most important! Watch for signs that the child is getting sicker so she knows when to bring the child back to the health worker.

It is your responsibility to teach the mother how to provide home care, and to make sure she understands why it is important. If the child has a simple cough or cold, explain why the child will not get an antibiotic. Thank the mother for bringing the child to the health centre, so she is more likely to return if the child seems worse.

Home care advice for mothers of children age 2 months up to 5 years[9] is summarized on the chart below, and described in the pages that follow.

▶ **Advise Mother to Give Home Care** (for the child age 2 months up to 5 years)*

- ▶ **Feed the child.**
  - ▶ Feed the child during illness.
  - ▶ Increase feeding after illness.
  - ▶ Clear the nose if it interferes with feeding
- ▶ **Increase fluids.**
  - ▶ Offer the child extra to drink.
  - ▶ Increase breast-feeding.
- ▶ **Soothe the throat and relieve the cough**
- ▶ **Most important : In the child with Cough or cold, watch for the following and return quickly if they occur :**
  - ▶ Breathing becomes difficult.
  - ▶ Breathing becomes fast.
  - ▶ Child is not able to drink.
  - ▶ Child becomes sicker.

This child may have pneumonia

[9] Home care advice for mothers of young infants is given in section on young infant (Chapter 3).

Feed the child.

- *Feed the child during illness.*
  Give the child older than 4-6 months of age foods. These should be mixes of cereal and locally available beans, or mixes of cereal and meat or fish. Add oil to these foods to make them more energy-rich.[10] Dairy products and eggs are also suitable if available or affordable. Encourage the child to eat as much as the child wants. If the child is less than four months old or has not started taking weaning foods, encourage the mother to breast-feed frequently.

- *Increase feeding after illness.*
  A child often eats less while sick. Therefore, after the respiratory infection is over, give one extra meal each day for a week, or until the child has regained normal weight. This will help the child regain normal health and prevent undernutrition. Undernutrition increases the chance that the next time the child gets a respiratory infection or diarrhoea, he will become more seriously ill.

- *Clear the nose if it interferes with feeding.*
  Use a soft cloth if a blocked nose is interfering with the child's feeding. If the nose is blocked due to dry or thick, sticky mucous, drip drops of salted water into the nose to help soften the mucous.

SPECIAL FEEDING ADVICE:

* *Continue to feed a child who cannot suck well due to stomatitis.*
  Severe stomatitis (inflammation of the mouth) can prevent effective sucking. If this happens, teach the child's mother to express her breast milk or to prepare safe milk feeds, and show her how to feed the child with a cup and spoon. Stomatitis often occurs in children with measles or in viral infections.

* *Feed a child with whooping cough, even if he vomits frequently.*
  Pay special attention to children with whooping cough, who may vomit frequently. This child may become undernourished. The mother should offer food frequently during and after the illness.

* *Bring the child back to the health centre if he is unable to eat and is losing weight.*

---

[10] This is the same energy-rich food recommended for weaning, for a child with malnutrition, or for feeding during and after diarrhoea. Health workers should be familiar with acceptable local recipes.

Increase fluids.

- *Offer the child extra to drink.*

A child with a respiratory infection can lose more fluids than usual, especially when he has a fever. Tell the mother to give additional fluids: more breast milk, clean water, milk, clear liquids, or juice.

- *Increase breast-feeding.*

If the child is only breast-feeding, advise the mother to breast-feed more frequently than usual.

Soothe the throat and relieve the cough with a safe remedy.

The mother can soothe the child's throat and relieve the cough by giving the child tea with sugar or honey or a safe, home-made[11] cough syrup or soothing remedy. She can also use a commercial remedy which does not contain any harmful ingredients.[12] However, these medicines are often expensive and usually work no better than home remedies.

Most important! Watch for signs of pneumonia.

Instruct the mother of a child with No Pneumonia: Cough or Cold[13] to watch for the following signs, and to bring the child back quickly to the health worker if she sees any of the following :

- Breathing becomes difficult.
- Breathing becomes fast.
- Child is not able to drink.
- Child becomes sicker.

Explain to her that if the child has any of these signs, he may have an illness called pneumonia.

Whenever possible, give the mother a written record of the home care instructions she should follow. On the following page is an example of a written record that could be given to mothers of children age 2 months up to 5 years who do not have pneumonia. You would use a different record for children that age with pneumonia, or for young infants.

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[11] Some health centres will provide an effective, soothing remedy. Follow the policy of your national programme.

[12] The health worker should review the common commercial cough and cold remedies, so he can tell the mothers which ones contain potentially harmful ingredients such as atropine, codeine, alcohol, phenergan or high doses of antihistamines; and which are not harmful and may be symptomatically helpful (such as a safe cough syrup).

[13] Instructions for a child who is classified as having Pneumonia are described on pages 27-28.

HOME CARE INSTRUCTIONS FOR CHILDREN AGE 2 MONTHS UP TO 5 YEARS WITH ACUTE RESPIRATORY INFECTIONS

Feed the Child.

- Feed the child during illness.
- Increase feeding after illness.
- Clear the nose if it interferes with feeding.

Increase Fluids.

- Offer the child extra drink.
- Increase breastfeeding.

Soothe the throat and relieve the cough with a safe remedy.

Most important :

Watch for the following signs and return quickly if they occur :

- Breathing becomes difficult.
- Breathing becomes fast.
- Child is not able to drink.
- Child becomes sicker.

This child may have pneumonia.

TREAT FEVER

Fever is common in acute respiratory infections. The method of treating fever in a child age 2 months up to 5 years will depend on whether the fever is high or low:

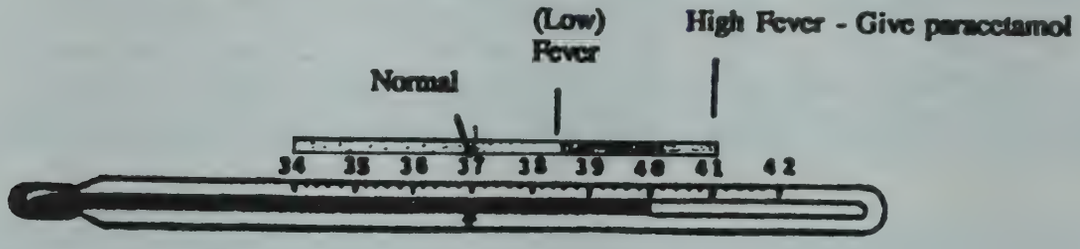
IF the fever is **high** (39°C or more)[14]:

A child with a high fever will feel and eat better if the fever is lowered with paracetamol. It is harder for a child with pneumonia to breathe when he has a high fever.

Tell the mother to give the child paracetamol every six hours in the appropriate dosage until the high fever stops (see table on treatment of fever). Give the mother enough paracetamol for two days.

IF the fever is **low** (38-39°C)[15]:

Advise the mother to give more fluids. Paracetamol is not needed.



Tell the mother to keep the child with any fever (38°C or more) lightly clothed. She should not overwrap the child or overdress him. It is uncomfortable and may make the fever worse.

Children age 2 months up to 5 years should NOT be given antibiotics if they have fever alone. However, fever is a danger sign in young infants, so a young infant with fever should be given a first dose of antibiotic and referred to a hospital. He should not be given paracetamol for fever.

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14 The Fahrenheit equivalent for 39°C is 102.2°F.

15 The Fahrenheit equivalent for 38°C is 100.4°F.

The step to follow when treating a fever are summarized on the chart below :

► ***Treat Fever***

• Fever is high (≥ 39^0 C).	• Fever is not high (38 - 39^0C).	• Fever for more than five days.
► Give paracetamol.	► Advise mother to give more fluids.	► Refer to assessment.

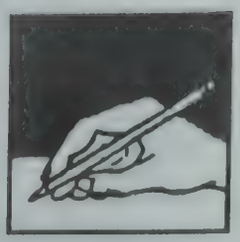
PARACETAMOL doses :

→ Every six hours

Age or Weight	100 mg tablet	500 mg tablet
2 months up to 12 months 6 - 9 kg	1	1/4
12 months up to 3 years 10 -14 kg	1	1/4
3 years upto 5 years 15 - 19 kg	1 1/2	1/2

FEVER ALONE IS NOT A REASON TO GIVE ANTIBIOTIC EXCEPT FOR A YOUNG INFANT (AGE LESS THAN 2 MONTHS).

GIVE FIRST DOSE ANTIBIOTIC AND REFER URGENTLY TO HOSPITAL.



EXERCISE F

In this exercise, you will assess and classify the illness of a child. Then, you will describe in detail how you would provide treatment. Assume that you are a health worker in a health centre. Answer the questions below by referring to the chart on page 97, and writing your answers in the space provided on this page. Be prepared to present your plans to the rest of the group when you have finished.

CASE ONE: Toni

1. Read the following case information:

   Toni is 11 months old and weighs 8 kgs. His mother brought him to see the health worker three days ago because he had a cough and felt hot. At that time Toni was taking 36 breaths per minute and had no chest indrawing. Toni was unwilling to eat but was able to drink. His temperature was 39.1°C. The health worker gave him paracetamol and advised his mother to bring Toni back if he became sicker or his breathing became difficult or fast.

   Toni's mother brought him back today because she thinks he is sicker and is having difficult breathing. In response to your questions, Toni's mother tells you that he has been coughing for more than one week. He is still able to drink. When you look at Toni, you find that he is taking 62 breaths per minute. He has no chest indrawing. His temperature is 37.8°C, and there is no malaria in the area.

2. List all of Toni's signs of illness in the space below.

   Cough
   Tachypnoea

3. Record how you would classify Toni's illness by writing the classification in the space below. Also list the signs you used to classify his illness.

4. Look at the treatment plan under the classification in which you put Toni, and record what you would do in the space below.

   Home Care

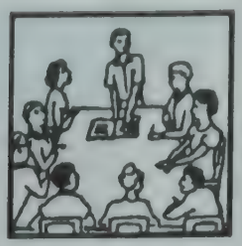
5. For what reason did the health worker give Toni paracetamol three days ago?

6. You have paracetamol, a safe cough remedy made in the health centre, and adult cotrimoxazole tablets (80 mg tablets) to treat sick children. Which medicine would you give Toni now?

How much and how often should Toni receive the medicine?

7. What would you tell Toni's mother about how to treat her child at home? What would you do to help her treat him at home? Write your plan here.

Tell a facilitator when you have finished this exercise.



EXERCISE G

Most of the treatment for a child with pneumonia is completed by the mother, so it is important that you make sure she understands how to provide care to her ill child. In this exercise you will practice teaching a mother how to give cotrimoxazole at home, and how to provide good home care.

One participant will play the role of a health worker, and a second participant will play the role of Toni's mother (from Exercise F). The other participants will observe the role play, and prepare for discussion after it has finished. Read the instructions below before beginning the role play.

Person Acting in the Role of the Health Worker

1. Instruct Toni's mother (played by a participant or a facilitator) on how to treat Toni at home.

   a. Provide all necessary information.

   b. Demonstrate what Toni's mother needs to do.

2. Make sure that Toni's mother understands and will remember what to do.

Observers (all other participants)

1. Do not interfere with the action of the role play while the health worker is instructing Toni's mother.

2. Observe the role play as the health worker helps the mother learn to provide good home care. Answer these questions as you watch:

QUESTIONS ABOUT GIVING AN ANTIBIOTIC:

a. Did the health worker demonstrate how to mix the antibiotic with food?

b. Did the health worker watch the mother as she administered the first dose at the health centre?

c. Did the health worker clearly describe all the steps?

d. Did he ask the mother to repeat the instructions, or ask her to demonstrate what she had heard?

e. Did he help her plan how to solve problems so that she could give the antibiotic on schedule?

f. Did he tell her to return in two days for reassessment?

QUESTIONS ABOUT HOME CARE:

g. Did he describe all four parts of good home care?

1. Feed the child
2. Increase fluids
3. Relieve sore throat and cough
4. Watch for signs that the child is getting sicker

h. Did he give her a written record of the antibiotic schedule?

i. Can you think of anything else the health worker could have done better?

EXERCISE H

In this exercise you will be asked to apply what you learned in this module to the situation in your own health centre. Do this by writing answers to the following questions in the space provided. Then be prepared to discuss them with the group.

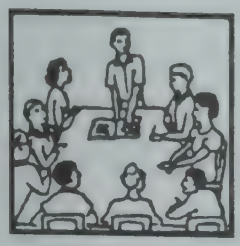
1. Is the case management process described in this module different from the process you follow in your own health centre? If yes, how is it different?

2. What parts of the case management process are the same?

3. Will you do anything differently in the future, because of things you learned from this module? If yes, what?

4. Are there obstacles that will prevent you from adopting the procedures described in this module? If yes, what are they?

Tell a facilitator when you have finished this exercise.



EXERCISE I

In this exercise you will go to a health centre or hospital where you will:

- see children with signs of illness
- watch the facilitator demonstrate how to assess and classify a child
- assess and classify the illness of at least one child.

Take the pamphlet with the ARI case management charts and some notepaper with you. You will also need to bring a timer, or a watch with a second hand, for every two participants. After the visit to the health centre, there will be a discussion of the cases you saw and any problems encountered.

ANNEXES

REFERRING A CHILD TO A HOSPITAL

RATIONALE FOR REFERRAL

A referral should only be made if you expect the child will actually receive better care at another facility. In some cases, giving the child the best care you have available is better than sending the child on a long trip to a referral hospital that may not have the supplies or the expertise to care for the child.

REFERRING THE CHILD

The following are recommended steps in referring a child to a hospital:

1. Explain to the mother that her child needs treatment in a hospital. Get her agreement to take the child. If she says that she does not want to take the child, identify her reasons. Help calm her fears and solve other difficulties she may have.

2. Discuss with the mother how she can travel to the hospital.

3. Administer the first dose of an antibiotic (and paracetamol if the child has a high fever, an antimalarial, and salbutamol, if indicated). Do not delay referral if these medicines cannot be given promptly.

   * If you only have an oral antibiotic, give the antibiotic only if the child is able to drink and can safely swallow the antibiotic.

   * If there is a long referral time, give additional doses of antibiotic for the mother to give en route (at the appropriate dosing schedule).

   * If referral is uncertain, give the mother the full 5-day course of the antibiotic.

4. Make sure the mother keeps the young infant warm during transport.

5. Give any other treatment that may be needed, such as treating fever, wheezing or suspected cerebral malaria.

6. Write a referral note for the mother to take with her to the hospital. Tell her to give it to the health worker who sees her child. Write:

   - The signs you have seen.
   - How you classified the illness.
   - The treatment that you have given.
   - Any other information that the health worker at the referral facility needs to know in order to care for the child, such as earlier treatment of the illness.

WHEN REFERRAL IS NOT FEASIBLE

The best possible treatment for a child with a very serious illness is at a hospital, if the hospital is able to provide adequate assessment and treatment.

Sometimes referral is not feasible. Distances to a hospital might be too far, the hospital may not have the equipment or staff to care for the child, or adequate transportation might not be available. Occasionally parents refuse to take a child to a hospital, in spite of the efforts of the health worker to explain the need for referral.

If referral is not feasible, then the health worker should do whatever he can to help the family care for the child. This may mean having the child stay near the health centre to be seen several times a day, or arranging for visits at home. Health workers can provide the following essential care:

1. *Treat the child with an effective antibiotic (if an antibiotic is indicated by the treatment plan).*

The Child Age 2 Months up to 5 Years:

Intramuscular chloramphenicol is the best choice of a single antibiotic for a child with a severe infection. It treats both children who have severe pneumonia and children with danger signs who may have meningitis. It can be given to a child who is not able to drink. Give it for five days in the dosage and frequency specified in the dosage chart on the next page.

If parenteral chloramphenicol is not available, then the next best is oral chloramphenicol by mouth or by nasogastric tube. Give oral chloramphenicol in the same dosage as parenteral chloramphenicol.

If chloramphenicol is not available in any form, then give the child benzylpenicillin intramuscular, or the oral pneumonia antibiotic that you are using in your health centre by mouth or nasogastric tube. Give the oral antibiotic for five days in the amounts and with the frequency specified on the "Give an Antibiotic" box on the chart. If the child vomits, repeat the dose.

The Young Infant:

Give intramuscular benzylpenicillin and gentamicin for five days in the amounts and frequency specified in the dosage box below.

If intramuscular benzylpenicillin and gentamicin are not available, then give the young infant the oral pneumonia antibiotic that you are using in your health centre by mouth or nasogastric tube. Give it for five days in the amounts and with the frequency specified in the "Give an Antibiotic" box on the chart. If the young infant vomits, repeat the dose.

EMERGENCY INTRAMUSCULAR ANTIBIOTIC DOSES:

- **Child age 2 months up to 5 years:**

Chloramphenicol intramuscular (dilute 1 gm vial with 4 ml sterile water)	25 mg per kg every 6 hours (OR 50 mg per kg every 12 hours)

- **Young infant age less than 2 months:**

Less than one week of age:

Benzylpenicillin plus gentamicin intramuscular	50, 000 units per kg every 12 hours 2.5 mg per kg every 12 hours

One week up to 2 months of age:

Benzylpenicillin plus gentamicin intramuscular	50, 000 units per kg every 8 hours 2.5 mg per kg every 8 hours

2. *Keep the young infant warm.*
Small and ill infants lose heat rapidly, especially when wet. Feel the young infant's hands and feet. They should be warm. Keeping the very young infant warm is especially important.

To maintain the body temperature, keep the sick young infant dry and well wrapped. If possible, have the mother keep her young infant next to her body, ideally between the breasts. A hat or bonnet will help prevent heat loss from the head. Keep the room warm, if possible.

3. *Clear secretions.*
When the nose is blocked, use a plastic syringe to gently suck any secretions from the nose. A blocked nose can interfere with feeding. (See chapter 4 for instructions on clearing the nose.)

4. *Treat fever, if present.*
Fever increases consumption of oxygen. In the child age 2 months up to 5 years, control the fever by giving paracetamol every six hours. In a falciparum malarious area, also give an antimalarial according to your malaria programme guidelines.

5. *Manage the child's fluids carefully.*
Children with severe pneumonia or other very severe disease can become overloaded with fluids easily. They should not be given too much fluid.

On the other hand, children with pneumonia or other very severe disease often lose fluids during a respiratory infection, especially if there is fever. They can go into shock if they do not receive adequate fluid. Therefore, you should give fluids, cautiously.

- Encourage the mother to continue breast-feeding, if the child is not in respiratory distress. If the child is too ill to breast-feed, the mother can express milk into a cup and feed with a spoon, slowly.

- If the child is not able to drink and you know how to insert a nasogastric tube, do so. Give the following until the child can drink:

Milk or formula <10 kg: 4 ml/kg/hour
10-20 kg: 5-6 ml/kg/hour

- Avoid giving fluids intravenously unless the child is in shock.

For more detailed information on dosage and duration of treatment, see *Acute Respiratory Infections in Children: Case Management in Hospitals in Developing Countries. A Manual for Doctors and Other Senior Health Workers.* Although the manual is not written for health centres, it describes how to treat children with severe pneumonia and severe disease. The manual might be useful in a health centre when there is no hospital for referral. (Request a copy from your national programme.)

DEFINITIONS OF TERMS

Definitions of Terms

Acute: new condition. Acute cough: lasting less than 30 days. Acute ear infection: lasting less than 14 days.

Acute Respiratory infection : an acute infection of the ear, nose, throat, larynx, trachea, bronchi, bronchioles or lung.

Acute lower respiratory infection (ALRI) : acute infection of the epiglottis, larynx, trachea, bronchi, bronchioles or lung.

Acute upper respiratory infection (AURI) : acute infection of the nose, pharynx (throat), middle ear.

Antibiotic: drugs that kill bacteria or stop their growth. They do not kill viruses (also referred to as antimicrobial).

Asthma: a condition marked by repeated attacks of wheezing in which the airways narrow due to bronchospasm (tight muscles around the airways). (Also called wheezy bronchitis, although this term should be avoided).

Bacteria: a kind of microorganism or germ that is killed by antibiotics.

Breathing rate: number of breaths per minute. Same as respiratory rate.

Bronchioles: the smallest air passages of the lungs.

Bronchi: the large air passages of the lungs.

Bronchitis: an infection of the bronchi, generally caused by viruses in young children.

Bronchiolitis: a viral infection of the bronchioles of the lungs which causes a swelling and narrowing resulting in wheezing. It can kill infants because of hypoxia or because pneumonia develops.

Bronchospasm: a tightening (spasm) of the muscles around the airway, which narrows the airway and cause wheezing.

Chest indrawing when the lower part of the chest (lower ribs and lower sternum) go in when a child breathes in. It is a sign of severe pneumonia, a wheezing condition, or croup.

Childhood: under age 5; that is, 0-4 years old.

Chronic cough: cough more than 30 days.

Cold: an acute viral infection of the upper respiratory tract (also called common cold).

Convulsions: a sudden loss of consciousness with uncontrolled, jerky movement. It can be caused by high fever, meningitis, hypoxia, cerebral malaria, epilepsy, and other conditions. (Also called fits).

Croup: narrowing of the larynx, trachea or epiglottis which interferes with air entering the lungs. It can be caused by a viral or bacterial infection.

Cyanosis: blue, purple, or grey skin colour due to hypoxia.

Dehydration: loss of a large amount of water and salt from the body.

Diphtheria: an acute, contagious bacterial infection marked by a grey, adherent membrane on the throat. It may cause death from laryngeal obstruction or cardiovascular toxic effects. It is a vaccine-preventable disease.

Epiglottis: the cartilaginous structure shaped like a lid overhanging the entrance to the larynx and serving to prevent food from entering the larynx and trachea while swallowing.

Epiglottitis: bacterial infection of the epiglottis, causing severe croup.

Fast breathing: a child age 12 months up to 5 years who is taking 40 breaths per minute or more has fast breathing. A child age 2 months up to 12 months who is taking 50 breaths per minute or more has fast breathing. A young infant age less than 2 months who is breathing 60 breaths per minute or more has fast breathing.

Feedback: information provided by others on the way a person is doing something. For example, a manager is giving feedback when he informs his staff of work they are doing well or makes suggestions for improvements. In communication, feedback is information provided by the receiver of a message on the way he reacts to the message.

Fits: see convulsions.

Foreign body: an object that is not normal to the place where it is found. For example, a bean that a child inhaled into his airway.

Grunting: short sounds that a child makes at the beginning of expiration. A sign of severe pneumonia.

Hypothermia: Low body temperature (less than 35.5°C)

Hypoxia: not having enough oxygen in the body.

Infant: a child less than 1 year old (0-11 months). A young infant is less than 2 months old (0-1 month).

Jaundice: a sign of disease in which parts of the body, such as the eyes, turn yellow.

Kwashiorkor: undernutrition that results from a lack of protein. The child is anaemic may have an enlarged liver, a generalized swelling of the body, and thin, sparse hair.

Laryngitis: infection of the larynx which causes hoarseness or croup.

Larynx: a part of the airway which is between the epiglottis and trachea. It is also called the voice box.

Marasmus: The most common form of severe undernutrition, with wasting away of the fat and muscle until the child has a "skin and bones" appearance.

Measles: an acute viral infection with fever, characteristic rash, and conjunctivitis. It can cause stomatitis, which interferes with feeding. Pneumonia and diarrhoea are common complications. Measles is a vaccine-preventable disease.

Morbidity: illness.

Mortality: death.

Nasal flaring: widening of the nose as the child breathes in. A sign of severe pneumonia.

Paracetamol: a drug which lowers fever and relieves pain (also known as acetaminophen).

Pertussis: a respiratory infection caused by the pertussis bacteria. A child coughs many times without breathing in. When the child breathes in again, he makes a noise called a whoop. Children may vomit frequently during bouts of coughing. Pertussis is a vaccine-preventable disease (also known as whooping cough).

Pharyngitis: an infection of the throat.

Pharynx: throat

Pneumonia: an acute infection of the lungs. It is classified according to severity based on clinical signs.

In the child age 2 months up to 5 years:

Severe pneumonia: cough or difficult breathing with chest indrawing but no cyanosis and the child is able to drink.

Pneumonia: cough or difficult breathing with fast breathing but no chest indrawing.

Pneumonia (or very severe disease) in the young infant age less than 2 months:

Any of these clinical signs can mean pneumonia or very severe disease (no classification according to severity is recommended):

Fast breathing

Severe chest indrawing

Stopped feeding well

Fever or feels cold

Abnormally sleepy or difficult to wake

Stridor in calm child, or wheezing

Convulsions

Respiratory distress: discomfort from not getting enough air into the lungs.

Respiratory rate: same as breathing rate.

Sepsis: the condition that is a result of the invasion of bacteria or their toxins in the blood stream. (Also called septicaemia and blood poisoning.)

Sterile: free from living microorganisms, including viruses and bacteria.

Stomatitis: inflammation of the mouth.

Stridor: a harsh noise when the child breathes in. It occurs when there is a narrowing of the larynx, trachea, or epiglottis. Stridor can be due to croup or a foreign body.

Timer: a simple device allowing the accurate measurement of a time interval.

Trachea: a tube that takes air from the larynx to the bronchi. (Also called the windpipe.)

Tuberculosis: a chronic infectious disease caused by a mycobacteria that can cause a chronic cough. It most often harms the lungs but can also cause fever, weight loss, and infection of lymph nodes. (Also known as TB.)

Virus: one of a group of minute infectious agents or germs that can not be killed by antibiotics.

Wheeze: a soft, musical noise when the child breathes out. It may be caused by a swelling and narrowing of the small airways of the lungs or by a contraction of the smooth muscles surrounding the airways in the lung.

Whooping cough: see pertussis.

Young infant: a child less than 2 months of age.

ARI CASE MANAGEMENT CHARTS